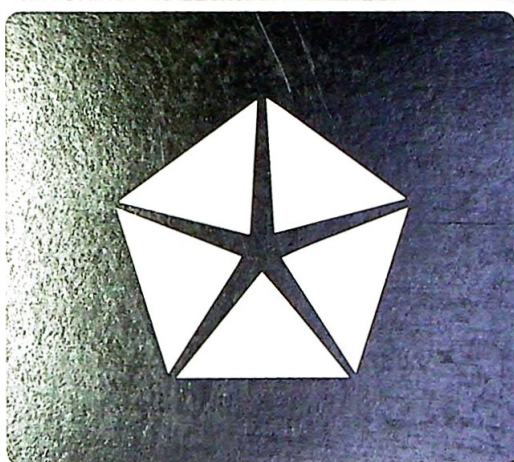


1999

Jeep® Cherokee



BODY DIAGNOSTIC PROCEDURES

CAUTION

ALL SERVICE AND REBUILDING INSTRUCTIONS CONTAINED HEREIN ARE APPLICABLE TO, AND FOR THE CONVENIENCE OF, THE AUTOMOTIVE TRADE ONLY. All test and repair procedures on components or assemblies in non-automotive applications should be repaired in accordance with instructions supplied by the manufacturer of the total product.

Proper service and repair is important to the safe, reliable, operation of all motor vehicles. The service procedures recommended and described in this publication were developed for professional service personnel and are effective methods for performing vehicle repair. Following these procedures will help assure efficient economical vehicle performance and service reliability. Some of these service procedures require the use of special tools designed for specific procedures. These special tools should be used when recommended throughout this publication.

Special attention should be exercised when working with spring or tension loaded fasteners and devices such as E-Clips, Circlips, Snap rings, etc., as careless removal may cause personal injury. Always wear safety goggles whenever working on vehicles or vehicle components.

It is important to note that this publication contains various Cautions and Warnings. These should be carefully read in order to minimize the risk of personal injury, or the possibility that improper service methods may damage the vehicle or render it unsafe. It is important to note that these Cautions and Warnings cover only the situations and procedures Chrysler Corporation has encountered and recommended. Chrysler Corporation could not possibly know, evaluate, and advise the service trade of all conceivable ways that service may be performed, or of the possible hazards of each. Consequently, Chrysler Corporation has not undertaken any such broad service review. Accordingly, anyone who uses a service procedure, or tool, that is not recommended in this publication must assure oneself thoroughly that neither personal safety, nor vehicle safety, be jeopardized by the service methods they select.

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1.0 INTRODUCTION

The procedures contained in this manual include all the specifications, instructions, and graphics needed to diagnose 1999 body system problems. The diagnostics in this manual are based on the failure condition or symptom being present at the time of diagnosis.

Please follow the recommendations below when choosing your diagnostic path.

1. First make sure the DRBIII® is communicating with the appropriate modules; i.e., if the DRBIII® displays a "No Response" condition, you must diagnose that first.
2. Read DTC's (diagnostic trouble codes) with the DRBIII®.
3. If no DTC's are present, identify the customer complaint.
4. Once the DTC or customer complaint is identified, locate the matching test in the Table of Contents and begin to diagnose the symptom.

All component location views are in Section 8.0. All connector pinouts are in Section 9.0. All schematics are in Section 10.0.

An * placed before the symptom description indicated a customer complaint.

When repairs are required, refer to the appropriate service manual for the proper removal and repair procedure.

Diagnostic procedures change every year. New diagnostic systems may be added; carryover systems may be enhanced. **READ THIS MANUAL BEFORE TRYING TO DIAGNOSE A VEHICLE DIAGNOSTIC TROUBLE CODE.** It is recommended that you review the entire manual to become familiar with all new and changed diagnostic procedures.

This book reflects many suggested changes from readers of past issues. After using this book, if you have any comments or suggestions, please fill out the back of the book and mail it back to us.

1.1 SYSTEM COVERAGE

This diagnostic manual covers 1999 Jeep Cherokee (XJ) vehicles.

1.2 SIX STEP TROUBLESHOOTING PROCEDURE

Diagnosis of the body system is done in six basic steps:

- Verification of complaint
- Verification of any related symptoms
- Symptom analysis
- Problem isolation

- Repair of isolated problem
- Verification of proper operation

2.0 IDENTIFICATION OF SYSTEM

The vehicle systems that are part of the "body" system are:

- Airbag System (ACM)
- Compass Mini-Trip Computer (CMTC)
- Mechanical Instrument Cluster (MIC)
- Remote Keyless Entry (RKE)
- Sentry Key Immobilizer (SKIS)
- Vehicle Communication

3.0 SYSTEM DESCRIPTION AND FUNCTIONAL OPERATION

The body system on the 1999 Jeep Cherokee consists of five modules that communicate over the CCD bus (Chrysler Collision Detection multiplex system). There are two additional modules, the Powertrain Control Module (PCM) and the Transmission Control Module (TCM) that are not part of the body system, but do utilize the CCD bus for communication. The TCM also utilizes the bus for diagnostics. The PCM sends and receives messages on the CCD bus; however, diagnostics are performed through the Serial Communication Interface or SCI, the same as last year. All of the information about the functioning of all the systems is organized, controlled and communicated by the CCD bus, described in Section 3.5 (CCD Bus) of this general information.

Through the CCD bus, information about the operation of vehicle components and circuits is relayed quickly to the appropriate module(s). All modules receive all the information transmitted on the bus although a module may not require all information to perform its function. Each module will only respond to messages "addressed" to it through a binary coding process. This method of data transmission significantly reduces the complexity of the wiring in the vehicle and the size of wiring harnesses.

When replacing a blown fuse, it is important to use only a fuse having the correct amperage rating. The use of a fuse with a rating other than indicated may result in a dangerous electrical system overload. If a properly rated fuse continues to blow, it indicates a problem in the circuit that must be corrected.

When replacing any bulbs, do not touch the new bulb with your fingers. Oil contamination will sev-

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erly shorten bulb life. If the new bulb comes in contact with an oily surface, clean the bulb with rubbing alcohol.

3.1 AIRBAG SYSTEM

A dual front airbag system is a standard equipment safety feature on this model. The airbag system is designed to provide increased driver and passenger protection if the vehicle is involved in a front-end collision. A DRBIII® scan tool is required for diagnosis of the airbag system. The system is the most effective when used in conjunction with the seat belt system. The airbag system consists of the Airbag Control Module (ACM), Mechanical Instrument Cluster (MIC), driver and hybrid passenger airbag module, clock spring, data link connector and the Chrysler Collision Detection multiplex system (CCD bus). There are no external impact sensors in this system.

The ACM is an electronic module that monitors the airbag system for proper operation, stores Diagnostic Trouble Codes (DTCs), controls the airbag warning lamp, and contains an energy storage capacitor. This capacitor stores enough electrical energy to deploy the airbags for up to one second following a battery disconnect or failure during an impact. The purpose of the capacitor is to provide airbag system protection in a severe secondary impact if the initial impact has damaged or disconnected the battery, but was not severe enough to deploy the airbag.

The ACM is mounted on the floor of the vehicle, under the left front seat and a metal protective cover is the most visible part. The ACM provides DTCs to the technician through the DRBIII® via the CCD bus. Some circuits are tested continuously; others are checked only under certain circumstances. The Mechanical Instrument Cluster (MIC) turns the warning lamp on or off based on CCD bus messages from the ACM. The ACM cannot be repaired and must be replaced if it is damaged or faulty.

THE AIRBAG SYSTEM IS A SENSITIVE, COMPLEX ELECTROMECHANICAL UNIT. BEFORE ATTEMPTING TO DIAGNOSE OR SERVICE ANY AIRBAG SYSTEM OR RELATED STEERING WHEEL, STEERING COLUMN OR INSTRUMENT PANEL COMPONENTS, YOU MUST FIRST DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE. WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE FURTHER SYSTEM SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE

TO DO THIS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

NEVER STRIKE OR KICK THE AIRBAG CONTROL MODULE BECAUSE IT CAN DAMAGE THE IMPACT SENSOR OR AFFECT ITS CALIBRATION. IF AN AIRBAG CONTROL MODULE IS ACCIDENTALLY DROPPED DURING SERVICE, THE MODULE MUST BE SCRAPPED AND REPLACED WITH A NEW UNIT.

The deceleration or g-force resulting from the impact of a front-end collision causes the safing sensor inside the ACM to close. As soon as the ACM internal accelerometer and the safing sensor are closed an electrical charge is sent to the airbag module. This causes the inflator to be actuated, thus deploying the airbags. The total time from the closure of the sensors to deployment and deflation of the airbags is 1/10 of one second.

The AIRBAG warning lamp is the only point at which "symptoms" of a system malfunction can be observed by the customer. Whenever the ignition key is turned to "run" or "start" position, the MIC performs a lamp check by turning the AIRBAG warning lamp on for six to eight seconds. If after that the lamp turns off, it means that the ACM has checked the system and found it to be free of discernible malfunctions. If the lamp remains on, there could be an active fault in the system or the MIC lamp circuit may be defective. If the lamp comes on and stays on for a period longer than six to eight seconds and then goes off, there is usually an intermittent problem in the system. The MIC monitors the airbag warning lamp for an open or defective lamp driver circuit. This information is sent to the ACM via a CCD bus message. The CCD bus messages listed below can be monitored using DRBIII® and selecting "passive restraints," "AIRBAG," "MONITOR DISPLAY," and "WARNING LAMP STATUS."

ACM LAMP REQUEST (on or off)

MIC BULB STATE (ok or failed)

MIC DRIVER STATE (ok or failed)

Perform the WARNING LAMP CIRCUIT OPEN procedure in this book to find the cause of any customer complaint regarding the AIRBAG warning lamp, such as:

- Warning lamp does not illuminate
- Warning lamp stays illuminated with no active DTCs

NOTE: THE AIRBAG WARNING LAMP WILL BE ILLUMINATED IF THE INSTRUMENT CLUSTER LOSES CCD BUS COMMUNICATION WITH THE AIRBAG MODULE OR PCM. THE CCD BUS SYSTEM MUST BE REPAIRED FIRST.

Service and general information labels about the airbag system can be found on the driver's sun visor, and in the engine compartment.

To ensure that the airbag will be ready to deploy in a collision, have the system serviced by an authorized dealer.

IMPORTANT NOTE: IF THE POWERTRAIN CONTROL MODULE HAS BEEN CHANGED AND THE CORRECT VIN AND MILEAGE HAVE NOT BEEN PROGRAMMED, A DTC WILL BE SET IN THE AIRBAG MODULE. IN ADDITION, IF THE VEHICLE IS EQUIPPED WITH A SENTRY KEY IMMOBILIZER MODULE (SKIM), SECRET KEY DATA MUST BE UPDATED TO ENABLE STARTING.

FOR AIRBAG SYSTEM:

ACTION:

1. Enter correct VIN and Mileage in PCM.
2. Erase codes in Airbag module.

DRIVER AIRBAG MODULE (DAB)

The Driver Airbag Module (DAB) protective trim cover is the most visible part of the driver side airbag system. The module is mounted directly to the steering wheel. The protective trim cover is fitted to the front of the airbag module and forms a decorative cover in the center of the steering wheel. Upon airbag deployment, this cover will split at a predetermined breakout line. Located under the airbag module trim cover are the horn switch, the airbag cushion and the airbag cushion supporting components. The airbag module includes a housing to which the cushion and inflator are attached and sealed. The airbag module cannot be repaired and must be replaced if deployed or is damaged or defective in any way. The inflator assembly is mounted to the back of the airbag module. When supplied with the proper electrical signal, the inflator seals the hole in the airbag cushion so it can discharge the gas it produces directly into the cushion.

THE AIRBAG MODULE INFLATOR ASSEMBLY CONTAINS SODIUM AZIDE AND POTASSIUM NITRATE. THESE MATERIALS ARE POSIONOUS AND EXTREMELY FLAMMABLE. CONTACT WITH ACID, WATER OR HEAVY METALS MAY PRODUCE HARMFUL OR IRRITATING GASES (SODIUM HYDROX-

IDE IS FORMED IN THE PRESENCE OF MOISTURE) OR COMBUSTIBLE COMPOUNDS. IN ADDITION, THE PASSENGER AIRBAG MODULE CONTAINS ARGON GAS PRESSURIZED TO OVER 2500 PSI. DO NOT ATTEMPT TO DISMANTLE AN AIRBAG MODULE OR TAMPER WITH ITS INFLATOR. DO NOT PUNCTURE, INCINERATE OR BRING INTO CONTACT WITH ELECTRICITY. DO NOT STORE AT TEMPERATURES EXCEEDING 93°C (200°F).

The DAB is connected to the ACM through a mechanical device called a clock spring. The clock-spring allows the DAB to be hardwired through the steering wheel to the ACM. A yellow quick disconnect connector is located under the steering column at the lower edge of the knee blocker panel. This connector when disconnected will disable both the DAB and PAB modules.

THE AIRBAG SYSTEM IS A SENSITIVE, COMPLEX ELECTROMECHANICAL UNIT. BEFORE ATTEMPTING TO DIAGNOSE OR SERVICE ANY AIRBAG SYSTEM OR RELATED STEERING, STEERING COLUMN OR INSTRUMENT PANEL COMPONENTS, YOU MUST FIRST DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE. WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE FURTHER SYSTEM SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY. WHEN A STEERING COLUMN HAS AN AIRBAG MODULE ATTACHED, NEVER PLACE THE COLUMN ON THE FLOOR OR ON ANY OTHER SURFACE WITH THE STEERING WHEEL OR AIRBAG MODULE FACE DOWN.

PASSENGER AIRBAG MODULE (PAB)

The airbag door on the instrument panel above the glove box is the most visible part of the passenger side airbag system. Under the airbag door are the airbag cushion and its supporting components. The airbag module includes a housing to which the cushion, inflator and canister of compressed gas are attached and sealed. The airbag module cannot be repaired and must be replaced if deployed or damaged. The inflator seals the hole in the airbag cushion so it can discharge the gas it produces directly into the cushion when supplied with the proper electrical signal. The airbag door is secured to the airbag module and the instrument panel base, and has predetermined breakout lines concealed beneath its decorative cover. Upon airbag deployment, the airbag door will split at the breakout lines and the door will pivot out of the way. The

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airbag door is serviced as a unit with the airbag module. If an airbag module assembly is defective and non-deployed, refer to the Chrysler Corporation current parts return list in the Warranty Policies and Procedures manual for the proper handling procedures.

THE AIRBAG MODULE INFLATOR ASSEMBLY CONTAINS SODIUM AZIDE AND POTASSIUM NITRATE. THESE MATERIALS ARE POISONOUS AND EXTREMELY FLAMMABLE. CONTACT WITH ACID, WATER OR HEAVY METALS MAY PRODUCE HARMFUL AND IRRITATING GASES (SODIUM HYDROXIDE IS FORMED IN THE PRESENCE OF MOISTURE) OR COMBUSTIBLE COMPOUNDS, IN ADDITION, THE PASSENGER AIRBAG MODULE CONTAINS ARGON GAS PRESSURIZED TO OVER 2500 PSI. DO NOT ATTEMPT TO DISMANTLE AN AIRBAG MODULE OR TAMPER WITH ITS INFLATOR. DO NOT PUNCTURE, INCINERATE OR BRING INTO CONTACT WITH ELECTRICITY. DO NOT STORE AT TEMPERATURES EXCEEDING 93°C (200°F).

A yellow quick disconnect connector is located under the steering column at the lower edge of the knee blocker panel. This connector when disconnected will disable both the DAB and PAB module.

THE AIRBAG SYSTEM IS A SENSITIVE, COMPLEX ELECTROMECHANICAL UNIT. BEFORE ATTEMPTING TO DIAGNOSE OR SERVICE ANY AIRBAG SYSTEM OR RELATED STEERING WHEEL, STEERING COLUMN OR INSTRUMENT PANEL COMPONENTS, YOU MUST FIRST DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE. WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE FURTHER SYSTEM SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REPLACE AIRBAG SYSTEM COMPONENTS ONLY WITH PARTS SPECIFIED IN THE CHRYSLER MOPAR PARTS CATALOG. SUBSTITUTE PARTS MAY APPEAR INTERCHANGEABLE, BUT INTERNAL DIFFERENCES MAY RESULT IN INFERIOR OCCUPANT PROTECTION. THE FASTENERS, SCREWS AND BOLTS ORIGINALLY USED FOR THE AIRBAG SYSTEM COMPONENTS HAVE SPECIAL COATINGS AND ARE SPECIFICALLY DESIGNED FOR THE AIRBAG SYSTEM. THEY MUST NEVER BE REPLACED WITH ANY SUBSTITUTES. ANYTIME A NEW FASTENER IS NEEDED, RE-

PLACE IT WITH THE CORRECT FASTENERS PROVIDED IN THE SERVICE PACKAGE OR SPECIFIED IN THE CHRYSLER MOPAR PARTS CATALOG.

3.1.1 AIRBAG DIAGNOSTIC TROUBLE CODES

Airbag diagnostic trouble codes consist of active and stored codes. If more than one code exists, diagnostic priority should be given to the active code(s).

Each diagnostic trouble code is diagnosed by following a specific testing procedure. The diagnostic test procedures contain step-by-step instructions for determining the cause of the trouble codes. It is not necessary to perform all of the tests in this book to diagnose an individual code.

Active diagnostic trouble codes for the airbag system are not permanent and will change the moment the reason for the code is corrected. In certain test procedures within this manual, diagnostic trouble codes are used as a diagnostic tool.

3.1.2 ACTIVE CODES

An active trouble code indicates an ongoing malfunction. This means that the defect is currently there every time the airbag control module checks that circuit/function. It is impossible to erase an active code; active codes automatically erase by themselves when the reason for the code has been corrected.

With the exception of the warning lamp trouble codes or malfunctions, when a malfunction is detected the AIRBAG lamp remains lit for a minimum of 12 seconds or as long as the malfunction is present.

3.1.3 STORED CODES

Airbag codes are automatically stored in the ACM's memory after 1 minute of occurrence or when the ignition is turned off. The exception is the "Loss of Ignition Run Only" code which is an active code only.

A "stored" code indicates there was an active code present at some time. However, the code currently **may not be present** as an active code although another active code could be.

When a trouble occurs, the AIRBAG warning lamp illuminates for 12 seconds minimum (even if the problem existed for less than 12 seconds). The code is stored, along with the time in minutes it was active, and the number of times the ignition has been cycled since the problem was last detected.

The minimum time shown for any code will be one minute, even if the code was actually present for less than one minute. Thus, the time shown for

a code that was present for two minutes 13 seconds, for example, would be three minutes.

If a malfunction is detected, a diagnostic trouble code is stored and will remain stored as long as the malfunction exists. When and if the malfunction ceases to exist, an ignition cycle count will be initiated for that code. If the ignition cycle count reaches 100 without a recurrence of that same malfunction, that diagnostic trouble code is erased and that ignition cycle counter is reset to zero. If the malfunction recurs before the count reaches 100, then the ignition cycle counter will be reset and the diagnostic trouble code will continue to be a stored code.

If a malfunction is not active while performing a diagnostic text procedure, the active code diagnostic test will not locate the source of the problem. In this case, the stored code can indicate an area to inspect.

If no obvious problems are found, erase stored codes. With the ignition "on," wiggle the wire harness and connectors, then rotate the steering wheel from stop to stop. Recheck for codes periodically as you work through the system. This procedure may uncover a malfunction that is difficult to locate.

3.1.4 AIRBAG TROUBLE CODES

The airbag control module may report any of the following diagnostic trouble codes.

For the following active or stored codes, replace the Airbag Control Module (ACM):

- AECM Accelerometer
- Internal Diagnostic 1
- Internal Diagnostic 2
- AECM Output Driver
- AECM Stored Energy Logic
- AECM Stored Energy Driver
- AECM Stored Energy Passenger
- Internal Diagnostic 3
- Internal Diagnostic 4
- Safing Sensor Shorted

For these codes, refer to the appropriate diagnostic procedure:

- Driver Squib Circuit Open
- Driver Squib Circuit Shorted
- Loss of Ignition Run Only
- Loss of Ignition Run/Start
- No Cluster CCD Bus Message
- No CCD Communication
- Passenger Squib Circuit Open
- Passenger Squib Circuit Shorted
- Either Squib Term Shorted to Battery
- Either Squib Term Shorted to Ground

- Warning Lamp Circuit Open/Shorted

3.2 COMPASS/MINI-TRIP COMPUTER

The Compass/Mini-Trip Computer (CMTC) is in the overhead console. It displays the following information:

- Compass direction
- Current outside temperature
- Elapsed Time (ET)
- Distance To Empty (DTE)
- Average Fuel Economy (AVE ECO)
- Instantaneous Fuel Economy (ECO)
- Trip Odometer (ODO)

All of the information required by the CMTC except the ambient temperature and compass direction is transmitted over the CCD bus.

The CMTC can perform an independent self-test. This can be accomplished by using either the DRB or pressing both US/M and STEP buttons and then turning the ignition key on. All segments of the CMTC should light while the CMTC checks its internal function. If there are internal failures, the CMTC will display "FAIL." If there is a problem with the CCD communication, the CMTC will display "CCD." Refer to the "Compass/Mini-Trip" section of this manual for further diagnosis.

3.2.1 SETTING THE COMPASS

The compass/mini-trip module is self-calibrated and requires no adjustment. The word CAL will be displayed to indicate that the compass is in the fast calibrating mode. CAL will turn off after the vehicle has gone in three complete circles without stopping, in an area free of magnetic disturbance.

If the module displays the temperature while the compass is blank, or displays a false reading, the vehicle must be demagnetized. See the service manual for the proper procedure.

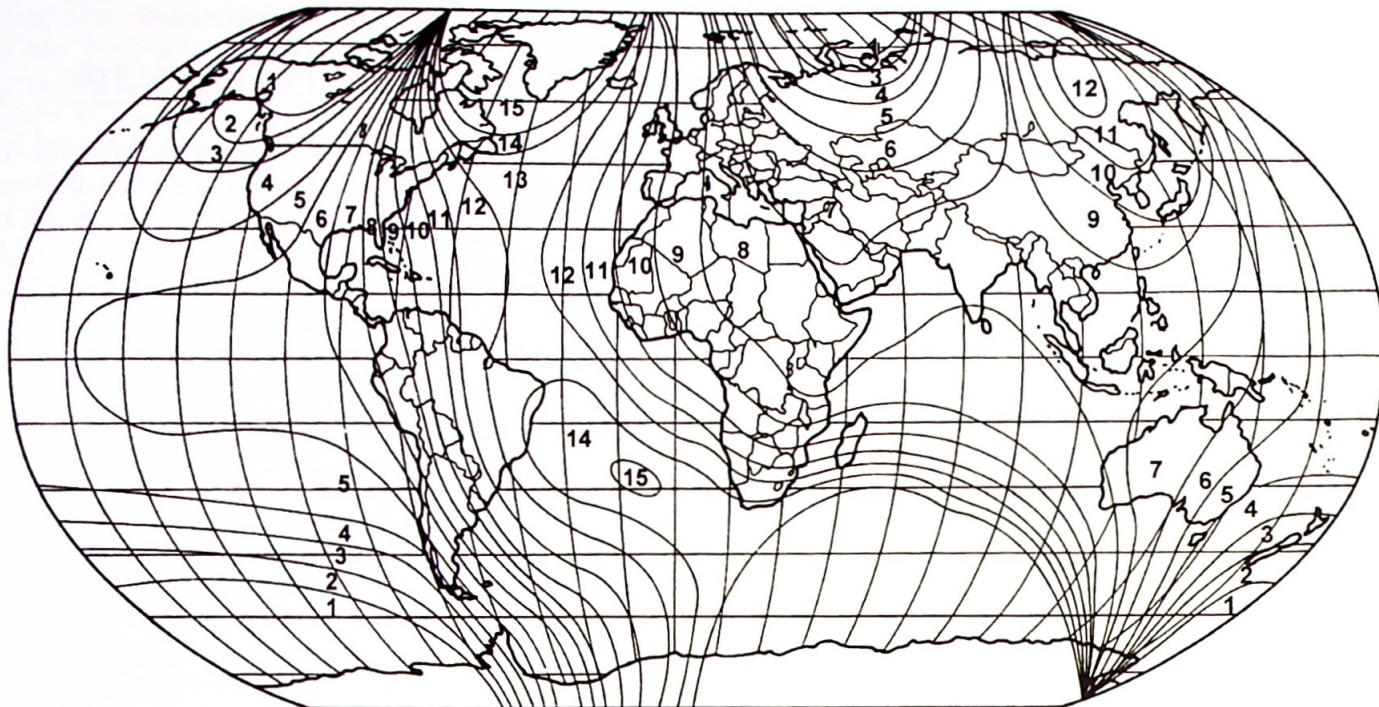
If the compass still goes blank after the vehicle is demagnetized, the compass/mini-trip module must be replaced.

3.2.2 SETTING THE COMPASS VARIANCE

Variance is the difference between magnetic north and geographic north. To determine the variance for the area you are in, refer to the zone map on the next page. The number shown for your area is the variance number for your area.

1. Set the compass/mini-trip console to compass/temperature mode.
2. Press and hold down both the US/METRIC button and the STEP button for 5 seconds.
3. The VAR light will come on and the last variance setting will be displayed.

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4. Enter the correct variance number by pressing the US/M button.
5. Press the STEP button to set the zone number and resume normal operation.

NOTE: DO NOT ATTACH ANY MAGNETIC DEVICE SUCH AS A MAGNETIC CB ANTENNA TO THE VEHICLE. THIS CAN CAUSE THE COMPASS TO GIVE FALSE READINGS.

3.3 INSTRUMENT CLUSTER

The instrument cluster for Jeep Cherokee (XJ) is available for two different versions: base with two gauges and premium with six gauges. The gauges are positioned with information received by the cluster over the CCD bus from the PCM. Some of the warning lamps are hardwired and some are controlled by the cluster using CCD bus information. The vehicle chime function is contained on the cluster circuit board, as well as the timer for the rear window defogger. There is a self-test available for the cluster that will actuate all the gauges and place them at their calibration points. The test will not run if the cluster sees engine RPM or vehicle speed. This test will light all CCD controlled lamps for verification of lamp operation. It also forces the odometer Vacuum Fluorescent (VF) display to count up from all zero's through all nine's. The self-test routine can be entered by pushing and holding the trip reset button while rotating the ignition key from the "off" to the "on" position, release the button after the test starts.

The VF display is also capable of displaying PCM DTC's. This feature is accessed the same as in previous years by turning the key from "off" to "run" three times and staying in position.

The instrument cluster will provide bus bias and termination and the PCM controller provides a second termination. If cluster is disconnected, the bus will not be biased.

The cluster will be serviced as an assembly. There will be limited parts available: bulbs and sockets, the front lens, the trip odometer stem cover and the hood and rear cover assembly. No internal parts of the lowline or highline cluster will be serviced.

Normal Operation: At key "on", the cluster will light the low fuel, oil pressure, temperature battery, seat belt, check gauges and airbag lamps. The check engine, ABS, and SKIM lamps are bulb tested by their system modules. As the key is turned farther toward the start position, the brake warning lamp will illuminate. The Vacuum Fluorescent (VF) display will indicate the mileage stored inside the cluster. If there is a bus failure and the cluster cannot receive distance pulses from the engine controller, the cluster will display the last mileage stored until the ignition key is turned off. If the cluster is receiving bus messages, but is unable to display odometer information because of an internal failure, the odometer display dashes. VF dimming is handled by the potentiometer that controls instrumentation illumination.

3.3.1 HEATED REAR WINDOW DEFOGGER

The timing circuit for the rear window defogger is contained in the cluster. The operation is as follows:

With the ignition on, the first push of the defogger button will start a 10-minute timer. After 10 minutes have elapsed, the defogger will be turned off. If the button is pushed a second time during the same ignition cycle, the timer will turn the defogger on for five minutes. Every consecutive push will operate the defogger for five minutes. When the defogger is on, it can be turned off with a second push of the defogger button.

3.3.2 CHIME

The chime function is a 1000 Hz tone within the cluster. The cluster will not generate more than one chime per condition in the same ignition cycle. If a problem occurs that requires a second chime while the first one is currently being generated, the second chime request will be ignored. The chime will sound for the following conditions:

- Headlamps on and driver's door open
- Seat Belt Warning — Six seconds after key on
- Key in Ignition Warning — Driver's front door open with key in ignition
- Engine Temp High — When gauges enter red zone
- Low Fuel — When fuel reaches 1/8 of a tank
- When overhead console is reset
- Skim key successfully programmed

3.3.3 LAMPS (HARDWIRED)

The following lamps are hardwired to the cluster and are not part of the self-test:

- Brake Warning (Red) - bulb test performed when the ignition switch is turned to the crank position
- Full Time 4WD
- Part Time 4WD
- High Beam
- Left Turn Signal
- Liftgate Ajar

The following lamps are bulb tested at ignition on by the appropriate system module.

- ABS (Amber)
- Check engine
- SKIM

3.3.4 LAMPS (CCD)

The following lamps are controlled by the cluster via CCD messages. They are bulb tested (actuated) during the self-test procedure.

- Airbag
- Cruise Control
- Low Fuel Warning
- Low Washer Fluid
- Upshift (If equipped)
- Seat Belt
- Sentry Key Immobilizer
- Engine Temp (If equipped)
- Battery (If equipped)
- Low Oil Pressure Warning (If equipped)

The lowline cluster does not contain a check gauges telltale.

NOTE: THE SEAT BELT AND LOW WASHER FLUID SWITCHES ARE HARDWIRED TO THE CLUSTER. THE CLUSTER THEN DECIDES IF THE LAMP SHOULD ILLUMINATE BASED ON THE HARDWIRED INPUT.

3.3.5 DIAGNOSTICS

3.3.5.1 Gauges

The Mechanical Instrument Cluster (MIC) will not store any DTCs. Because the Powertrain Control Module (PCM) gathers all the gauge information and sends it to the cluster via the bus, it is the PCM's responsibility to monitor these inputs and store DTCs for them. For this reason, the first item to be checked regarding a gauge problem (except oil pressure) should be the PCM for any DTCs relating to the gauge in question.

There are DTCs associated with all the gauges except for the oil pressure gauge. When diagnosing gauges, the input that is used for the gauge message (fuel level sender, for example) must be valid. Because of OBD II requirements, most of the information used for monitoring the OBD II system is the same information used by the controller to formulate the gauge bus messages. OBD II requirements state the fuel level sender must be checked for rationality. This includes determining if the sending unit voltage is too high or too low, or if the voltage has not changed over time. If the PCM has determined the sender information is not valid, it will set the DTC. The presence or absence of the fuel level sending code in the PCM is an important factor to determine whether a fuel gauge problem is in the sending unit or the cluster.

This same situation is used in all cluster diagnostics related to gauge operation with the exception of the oil pressure gauge. OBD II requirements do not include oil pressure monitoring. Therefore, oil pressure diagnostics would dictate that a mechanical oil pressure gauge be attached to the engine for absolute verification of oil pressure readings.

3.3.5.2 Hardwired Lamps

The cluster contains several hardwired lamps described earlier. These lamps are set up in two configurations: The lamp is supplied power by the cluster and the ground is supplied by the circuit being monitored, or the lamp is supplied with a ground in the cluster and power comes from a module or other device. Refer to the schematic in General Information for the specific details on the lamp in question. Verification of the bulb filament

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may be required in all cases of an inoperative lamp. This will require removal of the cluster and bulb in question.

3.3.5.3 CCD Controlled Lamps

The cluster contains several CCD controlled lamps as described earlier. These lamps are part of the diagnostic self-test. When entering the self-test mode, operation of these lamps can be observed. If the bulb fails to operate during the self-test and the bulb filament is good, the cluster assembly will need to be replaced.

3.4 REMOTE KEYLESS ENTRY (RKE)

The Remote Keyless Entry (RKE) module is in the overhead console or in the dome lamp assembly. It operates on a RF signal, which makes it less dependent on the aiming of the transmitter. When an unlock signal is received (from a transmitter), the module will ground the unlock control circuit, therefore actuating the passenger door module and at the same time grounding the courtesy lamps driver circuit, actuating the illuminated entry. The RKE module is capable of retaining four individual vehicle access codes (four transmitters). This system incorporates a rolling code feature. A horn chirp feature is also part of this system and is customer programmable.

The RKE module has some DRBIII® functions, actuators, read switch states, and RF signal status. The Door Lock, Door Unlock, Horn and Illuminated Entry lights can be actuated. The horn and illuminated entry activation time is adjustable using the DRBIII®. The DRB III® will read the switch status of the door lock switch and door unlock switch (opened/closed), the RF signal (valid/invalid) RF checksum, Programmed/Non-programmed RF transmitter, and the In-Sync/Out-of-Sync transmitter. The D.B. can also turn the horn chirp and illuminated entry on and off.

The XJ will be shipped with the horn chirp enabled. It can be deactivated manually using the following procedure: Press and hold the LOCK button on the transmitter for 5-10 seconds, and then while the LOCK button is pressed, press and release the UNLOCK button. The horn chirp feature can be reactivated by repeating the procedure.

3.4.1 PROGRAMMING AN RKE TRANSMITTER

Programming a transmitter can be accomplished using either the DRBIII® or the MDS machine. Using the DRBIII® select "Theft Alarm" (even though "Vehicle Theft Security System" is not available for this vehicle) then "Miscellaneous" then "Programming RKE". Select a position (1 - 4). The

locks will cycle to verify you are in programming mode. Press the unlock button on the transmitter. The locks will cycle again to verify programming has taken place. When you program to a position, that code will overwrite the code that was in that position and because you have no way of knowing if a valid code was there or not, it is recommended that whenever it is necessary to program a transmitter, all transmitters that are to be used with that vehicle should be programmed at that time. The 1999 XJ will have 2 RKE transmitter.

3.4.2 SYNCHRONIZATION (ROLLING CODE) BUTTON TRANSMITTERS

The transmitter will go out of synchronization if the button is pressed more than 128 times outside of the range of the receiver. In other words the transmitter will not unlock the doors. The transmitter will go out of synchronization if the batteries are removed and replaced. To synchronize the code of the particular transmitter with the receiver, press and hold the "lock" button while within the receiver range.

3.5 SENTRY KEY IMMOBILIZER

The SKIS is an immobilizer system designed to prevent unauthorized vehicle operation. The system consists of a Sentry Key Immobilizer Module (SKIM) and ignition key(s) called Sentry Key(s) which are equipped with a transponder chip. The SKIM communicates over the Chrysler Collision Detection Multiplex System (CCD) bus network to the Powertrain Control Module (PCM), and/or the DRB scan tool.

When the ignition is turned to the Run/Start position, the SKIM produces a Radio Frequency (RF) signal via an antenna which is located around the ignition lock cylinder. The RF powers up the transponder chip inside the Sentry Key. The transponder chip then emits a coded signal that is received by the SKIM antenna. If this coded signal is valid, the SKIM sends a "VALID KEY" message to the PCM. If the first transponder signal is not valid, the SKIM will attempt four more times to receive a correct transponder signal. If a valid signal is not received, the SKIM stores a diagnostic trouble code and send a "INVALID KEY" message to the PCM. Then the PCM will only allow the engine to start for two seconds then stall. This start and stall will be allowed up to six times, after which the PCM will disable the starter relay.

The SKIS includes two valid Sentry Keys from the factory. If the customer wishes, additional uncoded Sentry Key blanks are available. These blank keys must be cut to match a valid key, but the

engine will not start unless the transponder chip inside the blank key is programmed to that particular vehicle.

The Sentry Key Immobilizer System (SKIS) can be programmed to recognize a total of eight keys. For programming the Sentry Key Transponder refer to Section 8.0 Maintenance and Service Information in the back of this manual.

The SKIM sends messages to the Instrument Cluster over the CCD bus to control the SKIM indicator lamp. The SKIM sends a message to the cluster for about three seconds when the ignition is turned to the Run/Start position as a bulb test. If the indicator lamp comes on and stays on after the bulb test, it indicates that the SKIM has detected a system malfunction and/or that SKIS has become inoperative. If an invalid key is detected in the ignition key cylinder with the ignition switch in the Run/Start position, or when the SKIM has entered its customer key programming mode, the SKIM will flash the SKIM indicator lamp on and off.

3.5.1 SENTRY KEY IMMOBILIZER TROUBLE CODES

Typically, modules have Diagnostic Trouble Codes that are referred to as either *active* or *stored*. In the case of the Sentry Key Immobilizer Module, however, all codes are stored codes. The two various types of stored codes in the SKIM can be considered to be either *current* or *pre-existing* codes. If more than one code exists, diagnostic priority should be given to the active code(s). Record the DTC's before attempting to erase the DTC's. Active codes cannot be erased. Cycle the ignition and wait 90 seconds before reading DTC's again. If there are no active DTC's then refer to the pre-existing DTC's recorded in the previous step. A current code indicates a malfunction that is CURRENT at the time of vehicle service. A pre-existing code indicates the malfunction is not currently present. If a malfunction is not detected after 80 ignition cycles, the code will automatically be erased.

3.5.2 SENTRY KEY IMMOBILIZER MODULE TROUBLE CODES

Antenna Failure
EEPROM Failure
Internal SKIM Failure
PCM Status Failure
Rolling Code Failure
Serial Link External Failure
Serial Link Internal Failure
Transponder Communication Failure
Transponder (Cyclic Redundancy Check) CRC Failure
Transponder ID Mismatched

Transponder Response Mismatch
VIN Mismatch

3.5.3 SENTRY KEY IMMOBILIZER MODULE REPLACEMENT AND SYSTEM INITIALIZATION PROCESS

IMPORTANT NOTE: IF THE POWERTRAIN CONTROL MODULE HAS BEEN CHANGED AND THE CORRECT VIN AND MILEAGE HAVE NOT BEEN PROGRAMMED, A DTC WILL BE SET IN THE AIRBAG MODULE. IN ADDITION, IF THE VEHICLE IS EQUIPPED WITH A SENTRY KEY IMMOBILIZER MODULE (SKIM), SECRET KEY DATA MUST BE UPDATED TO ENABLE STARTING.

The Sentry Key Immobilizer Module (SKIM) Replacement and System Initialization Process can be summarized by the following:

1. Obtain the vehicle's unique PIN number assigned to its original SKIM module from either the vehicle's invoice or from Chrysler's Customer Center.
2. With the DRB, select "Theft Alarm," "Skim," "Miscellaneous." Select "SKIM Module Replaced" and the DRB will prompt you through the following steps.
3. Program the unique 4 digit PIN number into the SKIM's memory.
4. Program the vehicle's VIN number into the SKIM's memory.
5. Program the county code into the SKIM's memory (U.S.).
6. Transfer the vehicle's unique Secret Key data from the PCM. This process will require the SKIM module to be in *secured access* mode. The PIN number must be entered into the DRB before the SKIM will enter *secured access* mode. Once *secured access* mode is active, the SKIM will remain in that mode for 60 seconds.
7. Program all customer keys into the SKIM's memory. This requires that the SKIM be in *secured access* mode. The SKIM module will immediately exit *secured access* mode after each key is programmed. Note: *Secured access* mode is not required to query the programmed status of the key.

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NOTE 1: IF A PCM IS REPLACED, THE UNIQUE SECRET KEY DATA MUST BE TRANSFERRED FROM THE SKIM MODULE TO THE PCM. THIS PROCEDURE REQUIRES THE SKIM TO BE PLACED IN *SECURED ACCESS* MODE USING THE FOUR DIGIT PIN CODE.

NOTE 2: IF THREE ATTEMPTS ARE MADE TO ENTER *SECURED ACCESS* MODE USING AN INCORRECT PIN, *SECURED ACCESS* MODE WILL BE LOCKED OUT FOR ONE HOUR. TO EXIT THIS LOCK OUT MODE, LEAVE THE IGNITION SWITCH IN THE RUN POSITION CONTINUOUSLY FOR ONE HOUR. (ENSURE ALL ACCESSORIES ARE TURNED OFF. ALSO MONITOR THE BATTERY STATE AND CONNECT A BATTERY CHARGER IF NECESSARY).

To program Sentry Keys using the "customer programming" method, which requires two valid Sentry Keys, refer to either the owner's or service manuals.

3.5.4 PROGRAMMING BLANK SENTRY KEYS WITH THE DRB

When programming a blank Sentry Key transponder, the key blank must first be cut to match the ignition lock cylinder. It will also be necessary to enter the vehicle's 4-digit PIN code into the DRB to enter the SKIM's *secured access* mode.

NOTE: ONCE A SENTRY KEY IS PROGRAMMED TO A PARTICULAR VEHICLE IT CANNOT BE TRANSFERRED TO ANOTHER VEHICLE.

Insert the blank key into the ignition and turn it to the Run/Start position. Using the DRB select "Theft Alarm", then "SKIM", then "Miscellaneous". Select "Program New Key." Enter the 4-digit PIN code using the DRB. When programming is completed, the SKIM will exit *secured access* mode and display the status of the key. The different status messages are (programming successful, learned key in ignition, maximum key limit exceeded, programming not attempted or programming failed).

"Programming Successful" is displayed if SKIM Sentry Key programming succeeds.

"Learned Key in Ignition" is displayed if the key in the ignition has already been programmed into that vehicle's SKIM.

"8 Keys Already Learned (At The Maximum) Programming Not Done" is displayed if eight keys have already been programmed into the SKIM. In this case, if a new key needs to be added due to a lost or defective key, the "Erase All Keys" function

(requires entering *secured access* mode) has to be performed. Then the customer's seven keys plus the new key **MUST** be reprogrammed into the SKIM.

"Programming Key Failed" is displayed if further diagnosis is required.

To learn additional keys, turn the ignition off, remove the learned key, and insert the next new blank key. Turn ignition to the Run position and re-enter the *secured access* mode function and repeat the "Program New Key" procedure outlined above.

3.6 VEHICLE COMMUNICATION

The Chrysler Collision Detection multiplex system (CCD bus) consists of a twisted pair of wires. These wires run from one module to another. They receive and deliver coded information between the modules. The information is coded to identify the message, as well as the importance of the message. When there are multiple messages trying to access the CCD bus at one time, the code determines the message that has higher priority and is then allowed to access the bus first.

The two wires of the twisted pair that make up the CCD multiplex system are called "bus+" (bus plus) and "bus-" (bus minus) respectively. Each wire has a measurable voltage level of roughly 2.5 volts. In order to maintain the 2.5 volts on each line and provide a means of transportation for the coded messages, there is a "voltage divider network." This network consists of the Mechanical Instrument Cluster (MIC) that supplies both bias and termination and the PCM that provides a second termination. Bias is the part of the voltage divider network that places both bus+ and bus- at 2.5 volts. Termination in the circuitry is required to complete the voltage divider network and it also provides some electromagnetic protection for the bus.

NOTE: COMMUNICATION OVER THE BUS IS ESSENTIAL TO THE PROPER OPERATION OF SOME VEHICLE SYSTEMS, ON BOARD DIAGNOSTIC (OBD) SYSTEMS AND COMMUNICATION WITH THE DRB. PROBLEMS WITH THE OPERATION OF THE BUS OR DRB MUST BE CORRECTED BEFORE PROCEEDING WITH DIAGNOSTIC TESTING. IF THERE IS A PROBLEM, REFER TO THE VEHICLE COMMUNICATIONS SECTION IN THIS MANUAL.

3.6.1 CCD BUS FAILURE MESSAGES

Short to Battery - Either or both of the bus wires are shorted to the battery potential.

Short to 5 Volts - Either or both of the bus wires are shorted to a 5-Volt potential.

Short to Ground - Either or both of the bus wires are shorted to to ground or a specific ground may be open.

Bus (+) or Bus (-)

Shorted Together - The two bus wires are shorted together.

Bus Bias

Level Too Low - Either or both of the bus wire potentials are significantly below their normal 2.5 volts.

Bus Bias

Level Too High - Either or both of the bus wire potentials are significantly above their normal 2.5 volts.

No Termination - The bus system has lost connection with all of its terminators. The Instrument Cluster (MIC) and Power Train Controller (PCM) supplies termination for the 1997 Jeep Cherokee.

No Bus Bias - The bus system has lost connection with all modules that provide bias. The Instrument Cluster (MIC) provides the CCD bus bias for the 1997 Jeep Cherokee.

**Not Receiving
Bus Messages**

Correctly - The DRB cannot communicate over the bus and does not know why.

3.7 USING THE DRBIII®

Refer to the DRBIII® user's guide for instructions and assistance with reading trouble codes, erasing trouble codes, and other DRBIII® functions.

3.8 DRBIII® ERROR MESSAGES AND BLANK SCREEN

Under normal operation, the DRBIII® will display one of only two error messages:

- User-Requested WARM Boot or User-Requested COLD Boot

If the DRB should display any other error message, record the entire display and call the MDS Hotline, or call for information and assistance at 1-800-825-8737. This is a sample of such an error message display.

ver: 2.14
date: 26 Jul93
file: key_itf.cc
date: Jul 26 1993
line: 548
err: 0x1
User-Requested COLD Boot

Press MORE to switch between this display and the application screen.
Press F4 when done noting information.

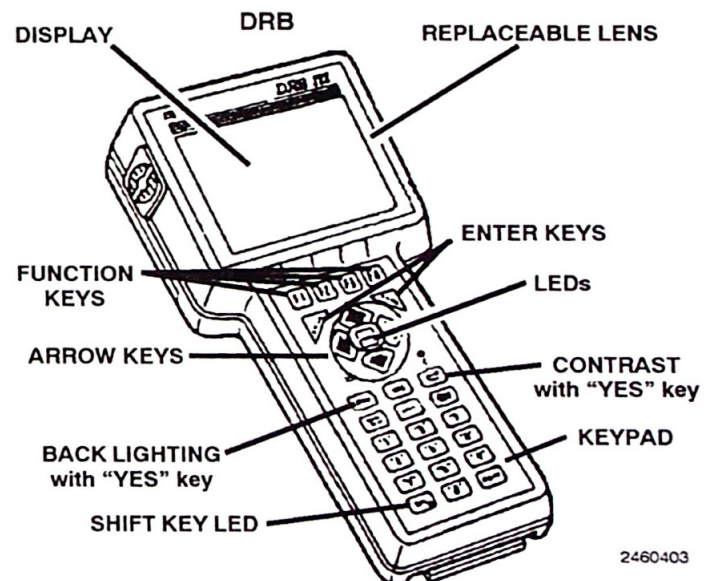
3.8.1 DRBIII® DOES NOT POWER UP

If the LED's do not light or no sound is emitted at start up, check for loose cable connections or a bad cable. Check the vehicle battery voltage (data link 16-way connector cavity 16). A minimum of 11 volts is required to adequately power the DRBIII®.

If all connections are proper between the DRBIII® and the vehicle or other devices, and the vehicle battery is fully charged, an inoperative DRBIII® may be the result of faulty cable or vehicle wiring. Perform Vehicle Communication TEST 1A.

3.8.2 DISPLAY IS NOT VISIBLE

Low temperatures will affect the visibility of the display. Adjust the contrast to compensate for this condition.



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GENERAL INFORMATION

4.0 DISCLAIMERS, SAFETY, WARNINGS

4.1 DISCLAIMERS

All information, illustrations, and specifications contained in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

4.2 SAFETY

4.2.1 TECHNICIAN SAFETY INFORMATION

WARNING: ENGINES PRODUCE CARBON MONOXIDE THAT IS ODORLESS, CAUSES SLOWER REACTION TIME, AND CAN LEAD TO SERIOUS INJURY. WHEN THE ENGINE IS OPERATING, KEEP SERVICE AREAS WELL VENTILATED OR ATTACH THE VEHICLE EXHAUST SYSTEM TO THE SHOP EXHAUST REMOVAL SYSTEM.

Set the parking brake and block the wheels before testing or repairing the vehicle. It is especially important to block the wheels on front-wheel drive vehicles; the parking brake does not hold the drive wheels.

When servicing a vehicle, always wear eye protection, and remove any metal jewelry such as watchbands or bracelets that might make an inadvertent electrical contact.

When diagnosing a body system problem, it is important to follow approved procedures where applicable. These procedures can be found in the service manual. Following these procedures is very important to the safety of individuals performing diagnostic tests.

4.2.2 VEHICLE PREPARATION FOR TESTING

Make sure the vehicle being tested has a fully charged battery. If it does not, false diagnostic error messages may occur.

4.2.3 SERVICING SUB-ASSEMBLIES

Some components of the body system are intended to be serviced in assembly only. Attempting to remove or repair certain system sub-components may result in personal injury and/or improper system operation. Only those components with approved repair and installation procedures in the service manual should be serviced.

4.2.4 DRBIII® SAFETY INFORMATION

WARNING: EXCEEDING THE LIMITS OF THE DRB MULTIMETER IS DANGEROUS. IT CAN EXPOSE YOU TO SERIOUS OR POSSIBLY FATAL INJURY. CAREFULLY READ AND UNDERSTAND THE CAUTIONS AND THE SPECIFICATION LIMITS.

- Follow the vehicle manufacturer's service specifications at all times.
- Do not use the DRBIII® if it has been damaged.
- Do not use the test leads if the insulation is damaged or if metal is exposed.
- To avoid electrical shock, do not touch the test leads, tips, or the circuit being tested.
- Choose the proper range and function for the measurement. Do not try voltage or current measurements that may exceed the rated capacity.
- Do not exceed the limits shown in the table below:

FUNCTION	INPUT LIMIT
Volts	0 - 500 peak volts AC 0 - 500 volts DC
Ohms (resistance)*	0 - 1.12 megohms
Frequency Measured Frequency Generated	0 - 10 kHz
Temperature	-58 - 1100°F -50 - 600°C

- * Ohms cannot be measured if voltage is present. Ohms can be measured only in a non-powered circuit.
- Voltage between any terminal and ground must not exceed 500v DC or 500v peak AC.
- Use caution when measuring voltage above 25v DC or 25v AC.
- The circuit being tested must be protected by a 10A fuse or circuit breaker.
- Use the low current shunt to measure circuits up to 10A. Use the high current clamp to measure circuits exceeding 10A.
- When testing for the presence of voltage or current, make sure the meter is functioning correctly. Take a reading of a known voltage or current before accepting a zero reading.
- When measuring current, connect the meter in series with the load.
- Disconnect the live test lead before disconnecting the common test lead.
- When using the meter function, keep the DRBIII® away from spark plug or coil wires to avoid measuring error from outside interference.

4.3 WARNINGS**4.3.1 VEHICLE DAMAGE WARNINGS**

Before disconnecting any control module, make sure the ignition is "off". Failure to do so could damage the module.

When testing voltage or continuity at any control module, use the terminal side (not the wire end) of the connector. Do not probe a wire through the insulation; will damage it and eventually cause it to fail because of corrosion.

Be careful when performing electrical tests so as to prevent accidental shorting of terminals. Such mistakes can damage fuses or components. Also, a second code could be set, making diagnosis of the original problem more difficult.

4.3.2 ROAD TESTING A COMPLAINT VEHICLE

Some complaints will require a test drive as part of the repair verification procedure. The purpose of the test drive is to try to duplicate the diagnostic code or symptom condition.

CAUTION: BEFORE ROAD TESTING A VEHICLE, BE SURE THAT ALL COMPONENTS ARE REASSEMBLED. DURING THE TEST DRIVE, DO NOT TRY TO READ THE DRB SCREEN WHILE IN MOTION. DO NOT HANG THE DRB FROM THE REAR VIEW MIRROR OR OPERATE IT YOURSELF. HAVE AN ASSISTANT AVAILABLE TO OPERATE THE DRB.

5.0 REQUIRED TOOLS AND EQUIPMENT

DRBIII® (diagnostic read-out box)
jumper wires
ohmmeter
voltmeter

6.0 GLOSSARY OF TERMS

ACM	airbag control module (AECM or ASDM)
AECM	airbag electronic control module (ACM)
airbag module	also called "squib" initiator. It is located inside the driver and passenger airbag module assembly.
ASDM	airbag system diagnostic module (ACM)
CCD	Chrysler collision detection (vehicle communication bus)
CMTc	compass/mini-trip computer
DAB	driver airbag
DLC	data link connector
LC	instrument cluster (mic)
ODO	odometer
PAB	passenger airbag
PCM	powertrain control module
PDC	power distribution center
RKE	remote keyless entry
SUV	sport utility vehicle
TCM	transmission control module
SKIM	Sentry Key Immobilizer Module
SKIS	Sentry Key Immobilizer System

NOTES

7.0

DIAGNOSTIC INFORMATION AND PROCEDURES

AIRBAG

Symptom List:

AECM ACCELEROMETER (ACTIVE)
AECM ACCELEROMETER (STORED)

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **AECM ACCELEROMETER (ACTIVE)**.

POSSIBLE CAUSES
AECM ACCELEROMETER

AECM ACCELEROMETER (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
1	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>When AECM ACCELEROMETER code is present, (active or stored), the Airbag Control Module (ACM) is defective.</p> <p>View repair options.</p> <p>Repair</p> <p>If AECM ACCELEROMETER code is present, (active or stored), the Airbag Control Module is defective. Replace the Airbag Control Module in accordance with Service Instructions. WARNING: Disconnect the battery and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A.</p>	All

AIRBAG

Symptom List:

AECM OUTPUT DRIVER CIRCUIT OPEN (ACTIVE)
AECM OUTPUT DRIVER CIRCUIT OPEN (STORED)

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **AECM OUTPUT DRIVER CIRCUIT OPEN (ACTIVE)**.

POSSIBLE CAUSES
AECM OUTPUT DRIVER CKT OPEN

AECM OUTPUT DRIVER CIRCUIT OPEN (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
2	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>When AECM OUTPUT DRIVER CIRCUIT code is present, (active or stored), the Airbag Control Module (ACM) is defective View repair options.</p> <p>Repair</p> <p>If AECM OUTPUT DRIVER CIRCUIT code is present, (active or stored), the Airbag Control Module is defective. Replace the Airbag Control Module in accordance with Service Instructions. WARNING: Disconnect the battery and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A.</p>	All

AIRBAG

Symptom List:

AECM STORED ENERGY DRIVER (ACTIVE)

AECM STORED ENERGY DRIVER (STORED)

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **AECM STORED ENERGY DRIVER (ACTIVE)**.

POSSIBLE CAUSES
AECM STORED ENERGY DRIVER

AECM STORED ENERGY DRIVER (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
3	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>When AECM STORED ENERGY DRIVER code is present, (active or stored), the Airbag Control Module (ACM) is defective.</p> <p>View repair options.</p> <p>Repair</p> <p>If AECM STORED ENERGY DRIVER code is present, (active or stored), the Airbag Control Module is defective. Replace the Airbag Control Module in accordance with Service Instructions.</p> <p>WARNING: Disconnect the battery and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A.</p>	All

AIRBAG

Symptom List:

AECM STORED ENERGY LOGIC (ACTIVE)

AECM STORED ENERGY LOGIC (STORED)

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **AECM STORED ENERGY LOGIC (ACTIVE)**.

POSSIBLE CAUSES
AECM STORED ENERGY LOGIC

AECM STORED ENERGY LOGIC (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
4	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>When AECM STORED ENERGY LOGIC code is present, (active or stored), the Airbag Control Module (ACM) is defective.</p> <p>View repair options.</p> <p>Repair</p> <p>If AECM STORED ENERGY LOGIC code is present, (active or stored), the Airbag Control Module is defective. Replace the Airbag Control Module in accordance with Service Instructions.</p> <p>WARNING: Disconnect the battery and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A.</p>	All

AIRBAG

Symptom List:

AECM STORED ENERGY PASSENGER (ACTIVE)

AECM STORED ENERGY PASSENGER (STORED)

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **AECM STORED ENERGY PASSENGER (ACTIVE)**.

POSSIBLE CAUSES
AECM STORED ENERGY PASS

AECM STORED ENERGY PASSENGER (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
5	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>When AECM STORED ENERGY PASSENGER code is present, (active or stored), the Airbag Control Module (ACM) is defective.</p> <p>View repair options.</p> <p>Repair</p> <p>If AECM STORED ENERGY PASSENGER code is present, (active or stored), the Airbag Control Module is defective. Replace the Airbag Control Module in accordance with Service Instructions.</p> <p>WARNING: Disconnect the battery and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A.</p>	All

Symptom:**DRIVER SQUIB CIRCUIT OPEN (ACTIVE)****When Monitored and Set Condition:****DRIVER SQUIB CIRCUIT OPEN (ACTIVE)**

When Monitored: Continuously with ignition on.

Set Condition:

POSSIBLE CAUSES

DRIVER AIRBAG LINE 1 OPEN

DRIVER AIRBAG MODULE OPEN

DRIVER AIRBAG LINE 2 OPEN

CLOCKSPRING OPEN

AIRBAG CONTROL MODULE DEFECTIVE, DRIVER AIRBAG CIRCUIT OPEN

DRIVER SQUIB CIRCUIT OPEN (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
6	<p>Ensure that the battery is fully charged.</p> <p>Warning: Turn Ignition Off, disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Driver Airbag Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Caution: Take care not to damage the Connector in the next step.</p> <p>Connect a jumper wire between Driver Airbag Line 1 and 2 at the Driver Squib Connector.</p> <p>Turn Ignition On, and then reconnect the Battery.</p> <p>With the DRB, read the active codes.</p> <p>Does the DRB show DRIVER SQUIB SHORT ?</p> <p>Yes → Replace the Driver Airbag Module. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 7</p>	All
7	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Disconnect the Clockspring 2-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>If jumper wires were installed in any previous test, disconnect them now.</p> <p>Disconnect the ACM Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Use an ohmmeter in the following step. Measure the Driver Airbag Line 1 Ckt between the ACM Connector and the Driver Airbag Line 1 Ckt at the Clockspring 2-way Connector.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 8</p> <p>No → Repair open or high resistance in the Driver Airbag Line 1 Circuit. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

DRIVER SQUIB CIRCUIT OPEN (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
8	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Disconnect the Clockspring 2-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>If jumper wires were installed on any previous test, disconnect them now.</p> <p>Disconnect the ACM Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Use an ohmmeter in the following step. Measure the Driver Airbag Line 2 Ckt between the ACM Connector and the Driver Airbag Line 2 Ckt at the Clockspring 2-way Connector.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 9</p> <p>No → Repair the open or high resistance in the Driver Airbag Line 2 Circuit.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
9	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Disconnect the Clockspring 2-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Connect a jumper wire between Driver Airbag Line 1 and 2 at the Clockspring 2-way Connector.</p> <p>Turn Ignition On, and then reconnect the Battery.</p> <p>With the DRB, read the active codes.</p> <p>Does the DRB show DRIVER SQUIB SHORT?</p> <p>Yes → Replace the Clockspring.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 10</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
10	<p>Warning: Turn Ignition OFF. Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>If there are no potential causes remaining, the Airbag Control Module is assumed to be defective.</p> <p>View repair options.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

Symptom List:

DRIVER SQUIB CIRCUIT OPEN (STORED)
DRIVER SQUIB CIRCUIT SHORTED (STORED)
EITHER SQUIB CIRCUIT SHORT/BATTERY (STORED)
EITHER SQUIB TERMINAL SHORT/GROUND (STORED)
LOSS OF IGNITION RUN ONLY (STORED)
LOSS OF IGNITION RUN/START (STORED)
NO CCD COMMUNICATION (STORED)
NO CLUSTER CCD BUS MESSAGE (STORED)
PASSENGER SQUIB CIRCUIT OPEN (STORED)
PASSENGER SQUIB CIRCUIT SHORTED (STORED)
WARNING LAMP OPEN/SHORTED (STORED)

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **DRIVER SQUIB CIRCUIT OPEN (STORED)**.

When Monitored and Set Condition:**DRIVER SQUIB CIRCUIT OPEN (STORED)**

When Monitored: Continuously with ignition on.

Set Condition:

DRIVER SQUIB CIRCUIT SHORTED (STORED)

When Monitored: Continuously with the ignition on.

Set Condition:

EITHER SQUIB CIRCUIT SHORT/BATTERY (STORED)

When Monitored: Continuously with the ignition on.

Set Condition: With ignition on, the driver or passenger airbag line 1 or line 2 circuit value is other than expected.

EITHER SQUIB TERMINAL SHORT/GROUND (STORED)

When Monitored: Continuously with the ignition on.

Set Condition: With ignition on, the driver or passenger airbag line 1 or line 2 circuit value is other than expected.

LOSS OF IGNITION RUN ONLY (STORED)

When Monitored: Continuously with ignition on.

Set Condition:

DRIVER SQUIB CIRCUIT OPEN (STORED) — Continued

LOSS OF IGNITION RUN/START (STORED)

When Monitored: Continuously with the ignition on.

Set Condition: With ignition on, the ignition run/start circuit voltage is other than expected.

NO CCD COMMUNICATION (STORED)

When Monitored: Continuously when the ignition is on.

Set Condition: If the ACM cannot detect the ACM to MIC warning lamp (on & off) message on the CCD bus for 5 consecutive seconds.

NO CLUSTER CCD BUS MESSAGE (STORED)

When Monitored: Continuously when the ignition is on.

Set Condition: If the ACM fails to see the status message from the instrument cluster for 6 continuous seconds, the code will be set.

PASSENGER SQUIB CIRCUIT OPEN (STORED)

When Monitored: Continuously with ignition on.

Set Condition:

PASSENGER SQUIB CIRCUIT SHORTED (STORED)

When Monitored: Continuously with ignition on.

Set Condition:

WARNING LAMP OPEN/SHORTED (STORED)

When Monitored: Continuously with the ignition on.

Set Condition: ACM monitors CCD Bus for airbag warning lamp diagnostic message from instrument cluster. Message is transmitted every second, and upon change of lamp state, by cluster. The message will contain the status of the bulb and the bulb driver.

POSSIBLE CAUSES

STORED CODE HAS BECOME ACTIVE

STORED CODE HAS NOT BEEN REPRODUCED

DRIVER SQUIB CIRCUIT OPEN (STORED) — Continued

TEST	ACTION	APPLICABILITY
11	<p>Ensure that the battery is fully charged. Active codes must be resolved before diagnosing stored codes. Place vehicle on a service hoist and raise wheels off the floor. Start Engine, idle speed, Transmission in Park position. Wiggle the wiring harness and connectors of the Airbag System and rotate the steering wheel from stop to stop. Check connectors - Clean / repair as necessary. You have just attempted to simulate the condition that initially set the trouble code message. The following additional checks may assist you in identifying a possible intermittent problem:</p> <ul style="list-style-type: none"> - Visually inspect related wire harness connectors. Look for broken, bent, pushed out, spread, corroded, or contaminated terminals. - Visually inspect the related harnesses. Look for chafed, pierced, pinched or partially broken wire. - Refer to any hotlines or technical service bulletins that may apply. <p>Did the DTC become active ?</p> <p>Yes → Select appropriate symptom from symptom list and continue with diagnosis. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → No problem found at this time. Erase all codes before returning vehicle to customer. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Turn ignition Off and lower the vehicle to the floor.</p>	All

AIRBAG

Symptom:

DRIVER SQUIB CIRCUIT SHORTED (ACTIVE)

When Monitored and Set Condition:

DRIVER SQUIB CIRCUIT SHORTED (ACTIVE)

When Monitored: Continuously with the ignition on.

Set Condition:

POSSIBLE CAUSES
DAB CONNECTOR DISCONNECTED
DAB LINE 1 SHORTED TO DAB LINE 2
DAB LINE 2 SHORT TO PAB LINE 2
DRIVER AIRBAG MODULE SHORTED
DRIVER AIRBAG LINE 2 SHORT TO PASSENGER AIRBAG LINE 1
CLOCKSPRING SHORTED
ACM DEFECTIVE, DRIVER AIRBAG CIRCUIT SHORTED

DRIVER SQUIB CIRCUIT SHORTED (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
12	<p>Ensure that the battery is fully charged. Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Ensure the Driver Squib Connector, Clockspring Connector, and the ACM Connector are completely connected and locked in place. Was the connectors completely connected?</p> <p>Yes → Go To 13</p> <p>No → Repair the poor connection. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
13	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed. Disconnect the Driver Side Airbag Module. Check connectors - Clean / repair as necessary. Disconnect the Clockspring 2-way Connector. Check connectors - Clean / repair as necessary. Use an ohmmeter in the following test. Measure between the Driver Airbag Line 1 and Line 2 at the Clockspring 2-way Connector. Is the resistance below 5.0 ohms?</p> <p>Yes → Repair Driver Airbag Line 1 short to Line 2. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 14</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
14	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed. Disconnect the Driver Side Airbag Module. Check connectors - Clean / repair as necessary. Disconnect the Clockspring 2-way Connector. Check connectors - Clean / repair as necessary. Disconnect the Passenger Airbag Module Connector. Check connectors - Clean / repair as necessary. Use an ohmmeter in the following test. Measure the Driver Airbag Line 2 between the Clockspring 2-way Connector and the Passenger Airbag Line 2 Ckt at the Passenger Airbag Conn. Is the resistance below 5.0 ohms?</p> <p>Yes → Repair Driver Airbag Line 2 shorted to the Passenger Airbag Line 2. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 15</p>	All

DRIVER SQUIB CIRCUIT SHORTED (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
15	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Driver Side Airbag Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition On, and then reconnect the Battery.</p> <p>With the DRB, read the active codes</p> <p>Does the DRB show DRIVER SQUIB CIRCUIT OPEN?</p> <p>Yes → Replace Driver Airbag Module. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 16</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
16	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Driver Side Airbag Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Disconnect the Clockspring 2-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Disconnect the Passenger Airbag Module Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Use an ohmmeter in the following test. Measure the Driver Airbag Line 2 between the Clockspring 2-way Connector and the Passenger Airbag Line 1 Ckt at the Passenger Squib Conn.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Repair Driver Airbag Line 2 shorted to the Passenger Airbag Line 1. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 17</p>	All
17	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Driver Side Airbag Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Disconnect the Clockspring 2-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition On, and then reconnect the Battery.</p> <p>With the DRB, read the active codes.</p> <p>Does the DRB show DRIVER SQUIB CIRCUIT OPEN?</p> <p>Yes → Replace Clockspring. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 18</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

DRIVER SQUIB CIRCUIT SHORTED (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
18	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. If there are no potential causes remaining, the Airbag Control Module is assumed to be defective. View repair options.</p> <p style="padding-left: 40px;">Repair</p> <p style="padding-left: 80px;">Replace the Airbag Control Module (ACM) in accordance with Service Instructions. WARNING: Make sure the battery is disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

AIRBAG

Symptom:

EITHER SQUIB CIRCUIT SHORT/BATTERY (ACTIVE)

When Monitored and Set Condition:

EITHER SQUIB CIRCUIT SHORT/BATTERY (ACTIVE)

When Monitored: Continuously with the ignition on.

Set Condition: With ignition on, the driver or passenger airbag line 1 or line 2 circuit value is other than expected.

POSSIBLE CAUSES
PASSENGER AIRBAG LINE 1 OR 2 SHORT TO VOLTAGE
CLOCKSPRING DEFECTIVE, SHORT TO VOLTAGE
DRIVER AIRBAG LINE 1 OR LINE 2 SHORT TO VOLTAGE
ACM DEFECTIVE, DAB OR PAB SHORT TO VOLTAGE

EITHER SQUIB CIRCUIT SHORT/BATTERY (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
19	<p>Ensure that the battery is fully charged.</p> <p>Warning: Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>CAUTION: A shorting clip is one safeguard built into the Airbag System to prevent accidental deployment when handling the airbag assembly. Static charges or radio frequency noise can cause electrical potential to develop in the airbag initiator.</p> <p>ACM Shorting Clips (cont.) Shorting clips prevent this when the connector is removed from the control module. DO NOT PROBE, BEND OR REMOVE SHORTING CLIPS</p> <p>Disconnect the ACM Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>Using a voltmeter, measure the Driver Airbag Line 1 then Line 2 from the Airbag Control Module Connector to ground.</p> <p>Is either circuit above 1.0 volts?</p> <p>Yes → Go To 20</p> <p>No → Go To 21</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
20	<p>Warning: Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>CAUTION: A shorting clip is one safeguard built into the Airbag System to prevent accidental deployment when handling the airbag assembly. Static charges or radio frequency noise can cause electrical potential to develop in the airbag initiator.</p> <p>ACM Shorting Clips (cont.) Shorting clips prevent this when the connector is removed from the control module. DO NOT PROBE, BEND OR REMOVE SHORTING CLIPS</p> <p>Disconnect the ACM Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Disconnect the Clockspring 2-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>Using a voltmeter, measure the Driver Airbag Line 1 then Line 2 from the Airbag Control Module Connector to ground.</p> <p>Is either circuit above 1.0 volts?</p> <p>Yes → Repair Driver Airbag Line 1 Circuit or Line 2 short to voltage. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Replace the Clockspring. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

EITHER SQUIB CIRCUIT SHORT/BATTERY (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
21	<p>Warning: Turn Ignition Off. Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>CAUTION: A shorting clip is one safeguard built into the Airbag System to prevent accidental deployment when handling the airbag assembly. Static charges or radio frequency noise can cause electrical potential to develop in the airbag initiator.</p> <p>ACM Shorting Clips (cont.) Shorting clips prevent this when the connector is removed from the control module. DO NOT PROBE, BEND OR REMOVE SHORTING CLIPS</p> <p>Disconnect the ACM Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Passenger Airbag Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>Using a voltmeter, measure the Passenger Airbag Line 1 then Line 2 from the Airbag Control Module Connector to ground.</p> <p>Is either circuit above 1.0 volts?</p> <p style="padding-left: 40px;">Yes → Repair Passenger Airbag Line 1 or Line 2 short to voltage. Perform Verification Test VER-1A</p> <p style="padding-left: 40px;">No → Go To 22</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
22	<p>Warning: Turn Ignition Off. Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>CAUTION: A shorting clip is one safeguard built into the Airbag System to prevent accidental deployment when handling the airbag assembly. Static charges or radio frequency noise can cause electrical potential to develop in the airbag initiator.</p> <p>ACM Shorting Clips (cont.) Shorting clips prevent this when the connector is removed from the control module. DO NOT PROBE, BEND OR REMOVE SHORTING CLIPS</p> <p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>If there are no potential causes remaining, the Airbag Control Module is assumed to be defective.</p> <p>View repair options.</p> <p style="padding-left: 40px;">Repair</p> <p style="padding-left: 80px;">Replace the Airbag Control Module in accordance with Service instructions. Ensure that the Ignition is off and Battery disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

Symptom:**EITHER SQUIB TERMINAL SHORT/GROUND (ACTIVE)****When Monitored and Set Condition:****EITHER SQUIB TERMINAL SHORT/GROUND (ACTIVE)**

When Monitored: Continuously with the ignition on.

Set Condition: With ignition on, the driver or passenger airbag line 1 or line 2 circuit value is other than expected.

POSSIBLE CAUSES

PAB LINE 1 OR 2 SHORT TO GROUND

CLOCKSPRING DEFECTIVE, SHORT TO GROUND

DAB LINE 1 OR 2 SHORT TO GROUND

ACM DEF DAB OR PAB SHORT TO GROUND

EITHER SQUIB TERMINAL SHORT/GROUND (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
23	<p>Ensure that the battery is fully charged. Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Disconnect the ACM Connector. Check connectors - Clean / repair as necessary. Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed. Disconnect the Passenger Airbag Module. Check connectors - Clean / repair as necessary. Disconnect the Driver Airbag Module. Using an ohmmeter, measure the Passenger Airbag Line 1 then Line 2 from the Passenger Airbag Connector to ground. Is either circuit resistance below 5.0 ohms?</p> <p>Yes → Repair Passenger Airbag Line 1 Circuit or Line 2 short to ground. Perform Verification Test VER-1A</p> <p>No → Go To 24</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
24	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Disconnect the ACM Connector. Check connectors - Clean / repair as necessary. Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed. Disconnect the Passenger Airbag Module. Disconnect the Driver Airbag Module. Using an Ohmmeter measure the Driver Airbag Line 1 then Line 2 from the Driver Squib Connector to ground at the Airbag Control Module Connector. Is either circuit resistance below 5.0 ohms?</p> <p>Yes → Go To 25</p> <p>No → Go To 26</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

EITHER SQUIB TERMINAL SHORT/GROUND (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
25	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Disconnect the ACM Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Passenger Airbag Module.</p> <p>Disconnect the Driver Airbag Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Disconnect the Clockspring 2-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using an Ohmmeter measure the Driver Airbag Line 1 then Line 2 from the Clockspring 2-Way Connector to ground.</p> <p>Is either circuit resistance below 5.0 ohms?</p> <p>Yes → Repair Driver Airbag Line 1 or Line 2 circuit shorted to ground. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Replace the Clockspring. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
26	<p>Warning: Turn Ignition Off. Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>If there are no potential causes remaining, the Airbag Control Module is assumed to be defective.</p> <p>View repair options.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service instructions. Turn Ignition Off, disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

AIRBAG

Symptom List:

INTERNAL DIAGNOSTICS 1 (ACTIVE)
INTERNAL DIAGNOSTICS 1 (STORED)
INTERNAL DIAGNOSTICS 2 (ACTIVE)
INTERNAL DIAGNOSTICS 2 (STORED)
INTERNAL DIAGNOSTICS 3 (ACTIVE)
INTERNAL DIAGNOSTICS 3 (STORED)
INTERNAL DIAGNOSTICS 4 (ACTIVE)
INTERNAL DIAGNOSTICS 4 (STORED)

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **INTERNAL DIAGNOSTICS 1 (ACTIVE)**.

POSSIBLE CAUSES
INTERNAL DIAGNOSTIC 1, 2, 3, OR 4

INTERNAL DIAGNOSTICS 1 (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
27	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>When Internal Diagnostic Code 1, 2, 3 or 4 is present, (active or stored), the Airbag Control Module (ACM) is defective.</p> <p>View repair options.</p> <p>Repair</p> <p>If Internal Diagnostic Code 1, 2, 3 or 4 is present, active or stored, the Airbag Control Module is defective. Replace the Airbag Control Module in accordance with Service Instructions. WARNING: Disconnect the battery and wait 2 minutes before proceeding</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A.</p>	All

AIRBAG

Symptom:

LOSS OF IGNITION RUN ONLY (ACTIVE)

When Monitored and Set Condition:

LOSS OF IGNITION RUN ONLY (ACTIVE)

When Monitored: Continuously with ignition on.

Set Condition:

POSSIBLE CAUSES
IGNITION SWITCH OUTPUT CIRCUIT OPEN
FUSE #26 DEFECTIVE
FUSED IGN SW OUTPUT CKT SHORT TO GND
FUSED IGNITION SWITCH OUTPUT CIRCUIT OPEN
ACM DEF FUSED IGNITION SW SHORT TO GND
ACM DEF FUSED IGNITION SWITCH CKT OPEN

LOSS OF IGNITION RUN ONLY (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
28	Ensure that the battery is fully charged. Remove and inspect Fuse #26. Is the Fuse open? Yes → Go To 29 No → Go To 32	All
29	Turn Ignition Off. Using an Ohmmeter measure the Fused Ign Sw Output Run Circuit between Fuse #26 and ground. Is the resistance below 5.0 ohms? Yes → Go To 30 No → Replace Fuse #26. Perform AIRBAG VERIFICATION TEST VER-1A	All
30	Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Disconnect the Airbag Control Module Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter measure the Fused Ignition Output Run Circuit (Cav 20) between the ACM Connector and ground. Is the resistance below 5.0 ohms? Yes → Repair Fused Ignition Switch Output Run (Only) Ckt for a short to ground. Replace Fuse #26. Perform AIRBAG VERIFICATION TEST VER-1A No → Go To 31	All
31	WARNING: If the Airbag Control Module is dropped at any time, it must be replaced. Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. If there are no potential causes remaining, the Airbag Control Module is assumed to be defective. View repair options. Repair Replace the Airbag Control Module in accordance with Service instructions. Replace Fuse #26. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A	All
32	Remove Fuse # 26. Using a voltmeter measure between the Ignition Switch Output Circuit at Fuse Cavity #26 and ground. Is the voltage above 10.0 volts? Yes → Go To 33 No → Repair open Ignition Switch Output Ckt. Perform AIRBAG VERIFICATION TEST VER-1A	All

AIRBAG

LOSS OF IGNITION RUN ONLY (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
33	<p>Reinstall Fuse #26 if had been removed in a previous test.</p> <p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Disconnect the ACM Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition Key On and then reconnect the Battery.</p> <p>Using a voltmeter measure the Fused Ignition Switch Output Run Circuit (Cav 20) between the ACM Connector and ground.</p> <p>Is the voltage above 10.0 volts?</p> <p>Yes — Go To 34</p> <p>No — Repair the open Fused Ignition Switch Output Run Only Ckt.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A</p>	All
34	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>If there are no potential causes remaining, the Airbag Control Module is assumed to be defective.</p> <p>View repair options.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A</p>	All

Symptom:**LOSS OF IGNITION RUN/START (ACTIVE)****When Monitored and Set Condition:****LOSS OF IGNITION RUN/START (ACTIVE)**

When Monitored: Continuously with the ignition on.

Set Condition: With ignition on, the ignition run/start circuit voltage is other than expected.

POSSIBLE CAUSES

IGNITION SWITCH OUTPUT RUN/START OPEN

FUSE #27 DEFECTIVE

FUSED IGN SW OPT RUN/START SHORTED TO GND

FUSED IGNITION SW OUTPUT RUN/START OPEN

ACM DEF, FUSED IGN RUN/START SHORTED

AIRBAG CONTROL MODULE DEFECTIVE, FUSED IGNITION RUN/START OPEN

AIRBAG

LOSS OF IGNITION RUN/START (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
35	<p>Ensure that the battery is fully charged. Remove and inspect Fuse #27. Is the Fuse open?</p> <p>Yes → Go To 36 No → Go To 39</p>	All
36	<p>Turn Ignition Off. Remove Fuse #27. Using an ohmmeter, measure the Fused Ignition Sw Output Run/Start Circuit between Fuse #27 and ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 37 No → Replace Fuse. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All
37	<p>Warning: Turn Ignition Off. Disconnect the Battery and wait 2 minutes before proceeding. Remove Fuse #27. Disconnect the ACM Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter measure the Fused Ignition Switch Output Run/Start Circuit (Cav 17) between the ACM Connector and ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Repair Fused Ignition Switch Output Run Start Ckt for a short to ground and replace Fuse #27. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 35</p>	All
38	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced. Warning: Turn Ignition Off. Disconnect the Battery and wait 2 minutes before proceeding. If there are no potential causes remaining, the Airbag Control Module is assumed to be defective. View repair options.</p> <p>Repair</p> <p>Replace Fuse #27. Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All
39	<p>Remove Fuse #27. Using a voltmeter measure the Ignition Switch Output Ckt between Fuse #27 and ground. Is the voltage above 10.0 volts?</p> <p>Yes → Go To 40 No → Repair open Ignition Switch Output Ckt. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All

LOSS OF IGNITION RUN/START (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
40	<p>Reinstall Fuse #27 if it had been removed in a previous test. Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Disconnect the ACM Connector. Check connectors - Clean / repair as necessary. Turn Ignition On and then reconnect the Battery. Using a voltmeter measure the Fused Ignition Switch Output Run/Start Circuit (Cav 17) between the Airbag Control Module Connector and ground. Is the voltage above 10.0 volts?</p> <p>Yes → Go To 41</p> <p>No → Repair open Fused Ignition Switch Output Run Start Ckt. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All
41	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced. Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. If there are no potential causes remaining, the Airbag Control Module is assumed to be defective. View repair options.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All

Symptom List:

NO CCD COMMUNICATION (ACTIVE)

NO CLUSTER CCD BUS MESSAGE (ACTIVE)

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **NO CCD COMMUNICATION (ACTIVE)**.

When Monitored and Set Condition:

NO CCD COMMUNICATION (ACTIVE)

When Monitored: Continuously when the ignition is on.

Set Condition: If the ACM cannot detect the ACM to MIC warning lamp (on & off) message on the CCD bus for 5 consecutive seconds.

NO CLUSTER CCD BUS MESSAGE (ACTIVE)

When Monitored: Continuously when the ignition is on.

Set Condition: If the ACM fails to see the status message from the instrument cluster for 6 continuous seconds, the code will be set.

POSSIBLE CAUSES

BUS NOT OPERATIONAL

NO CLUSTER CCD BUS MESSAGES

MIC BULB STATE NO RESPONSE

MIC DRIVER STATE NO RESPONSE

ACM DEF, LAMP REQUEST CKT

NO CCD COMMUNICATION (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
42	<p>Ensure that the battery is fully charged. With the DRB in SYSTEM MONITORS, perform a CCD BUS TEST. Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Go To 43</p> <p>No → Choose an appropriate Bus failure symptom from the Communication category of symptoms and diagnose the communication problem first. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All
43	<p>With the DRB select PASSIVE RESTRAINTS, AIRBAG, MONITOR DISPLAYS and then WARNING LAMP STATUS. Does the DRB show ACM LAMP REQUEST NO RESPONSE ?</p> <p>Yes → Go To 44</p> <p>No → Refer to symptom list for problems related to Airbag to diagnose any remaining problem. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All
44	<p>With the DRB select PASSIVE RESTRAINTS, AIRBAG, MONITOR DISPLAYS and then WARNING LAMP STATUS. Does the DRB show MIC BULB STATE: NO RESPONSE?</p> <p>Yes → Replace the Instrument Cluster. Perform AIRBAG VERIFICATION TEST VER-1A.</p> <p>No → Go To 45</p>	All
45	<p>With the DRB select PASSIVE RESTRAINTS, AIRBAG, MONITOR DISPLAYS and then WARNING LAMP STATUS. Does the DRB show MIC DRIVER STATE: NO RESPONSE?</p> <p>Yes → Replace the Instrument Cluster. Perform AIRBAG VERIFICATION TEST VER-1A.</p> <p>No → Go To 46</p>	All
46	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced. Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. If there are no potential causes remaining, the Airbag Control Module is assumed to be defective. View repair options.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. Warning: Turn Ignition Off. Disconnect the Battery and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A.</p>	All

AIRBAG

Symptom:

PASSENGER SQUIB CIRCUIT OPEN (ACTIVE)

When Monitored and Set Condition:

PASSENGER SQUIB CIRCUIT OPEN (ACTIVE)

When Monitored: Continuously with ignition on.

Set Condition:

POSSIBLE CAUSES
PASSENGER AIRBAG LINE 1 OPEN
PASSENGER AIRBAG LINE 2 OPEN
PASSENGER SIDE AIRBAG MODULE OPEN
ACM DEFECTIVE PAB CKT OPEN

PASSENGER SQUIB CIRCUIT OPEN (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
47	<p>Ensure that the battery is fully charged.</p> <p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Passenger Side Airbag Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Connect a jumper wire between Cavity PAB Line 1 Ckt and the PAB Line 2 Ckt at the Passenger Airbag Module Connector.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>With the DRB read the active codes.</p> <p>Does the DRB show PASSENGER SQUIB SHORT?</p> <p style="padding-left: 40px;">Yes → Replace Passenger Side Airbag Module. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p style="padding-left: 40px;">No → Go To 48</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
48	<p>Warning: Turn Ignition Off. Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Passenger Airbag Module Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>If a jumper wire had been installed for a previous test, remove it at this time.</p> <p>Disconnect the ACM Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Use an Ohmmeter in the following step. Measure the Passenger Airbag Line 1 between the ACM Connector and the Passenger Airbag Module 4-Way Connector.</p> <p>Is the resistance below 5.0 ohms ?</p> <p style="padding-left: 40px;">Yes → Go To 49</p> <p style="padding-left: 40px;">No → Repair open or high resistance in Passenger Airbag Line 1. Perform AIRBAG VERIFICATION TEST VER-1A.</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

AIRBAG

PASSENGER SQUIB CIRCUIT OPEN (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
49	<p>Warning: Turn Ignition Off. Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Passenger Airbag Module Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>If a jumper wire had been installed for a previous test, remove it at this time.</p> <p>Disconnect the ACM Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Use an Ohmmeter in the following step. Measure the Passenger Airbag Line 2 between the ACM Connector and the Passenger Airbag Module 4-Way Connector.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes — Go To 50</p> <p>No — Repair open or high resistance in Passenger Airbag Line 2.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
50	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>Warning: Turn Ignition Off. Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>If there are no potential causes remaining, the Airbag Control Module is assumed to be defective.</p> <p>View repair options.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

Symptom:**PASSENGER SQUIB CIRCUIT SHORTED (ACTIVE)****When Monitored and Set Condition:****PASSENGER SQUIB CIRCUIT SHORTED (ACTIVE)**

When Monitored: Continuously with ignition on.

Set Condition:

POSSIBLE CAUSES

PASSENGER AIRBAG LINE 1 SHORTED TO LINE 2

PASSENGER AIRBAG LINE 2 SHORT TO DRIVER AIRBAG LINE 1

PASSENGER AIRBAG LINE 2 SHORT TO DRIVER AIRBAG LINE 2

PASSENGER AIRBAG MODULE SHORTED

ACM DEF, PAB LINE 1 SHORTED TO LINE 2

PASSENGER SQUIB CIRCUIT SHORTED (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
51	<p>Ensure that the battery is fully charged. Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed. Disconnect the Passenger Side Airbag Module. Check connectors - Clean / repair as necessary. Turn Ignition On and then reconnect the Battery. With the DRB, read the active codes. Does the DRB show PASSENGER SQUIB OPEN?</p> <p>Yes → Replace Passenger Airbag Module. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 52</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
52	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed. Disconnect the Passenger Airbag Module. Check connectors - Clean / repair as necessary. Disconnect the Clockspring 2-way Connector. Check connectors - Clean / repair as necessary. Using an Ohmmeter measure between the PAB Line 2 Ckt at the PAB 4-way Connector and the DAB Line 1 Ckt at the Clockspring 2-way Connector. Is the resistance below 5.0 ohms?</p> <p>Yes → Repair the Passenger Airbag Line 2 short to Driver Airbag Line1. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 53</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
53	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed. Disconnect the Passenger Airbag Module. Check connectors - Clean / repair as necessary. Disconnect the Clockspring 2-way Connector. Check connectors - Clean / repair as necessary. Using an Ohmmeter measure between the PAB Line 2 Ckt at the PAB 4-way Connector and the DAB Line 2 Ckt at the Clockspring 2-way Connector. Is the resistance below 5.0 ohms?</p> <p>Yes → Repair Passenger Airbag Line 2 short to Driver Airbag Line 2. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 54</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

PASSENGER SQUIB CIRCUIT SHORTED (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
54	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Caution: Do not place an intact undeployed Airbag face down on a hard surface, the Airbag will propel into the air if accidentally deployed.</p> <p>Disconnect the Passenger Airbag Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Disconnect the Clockspring 2-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using an ohmmeter measure from the Passenger Airbag Line 1 to Line 2 at the Passenger Airbag 4-way Connector.</p> <p>Is the resistance below 5.0 ohms?</p> <p style="padding-left: 40px;">Yes → Repair the Passenger Airbag Line 1 circuit short to Line 2. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p style="padding-left: 40px;">No → Go To 55</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All
55	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>If there are no potential causes remaining, the Airbag Control Module is assumed to be defective.</p> <p>View repair options.</p> <p style="padding-left: 40px;">Repair</p> <p style="padding-left: 80px;">Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p style="padding-left: 80px;">Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>Note: When reconnecting the Driver Airbag Module and/or Passenger Airbag Module the Ignition must be Off and the Battery must be disconnected.</p>	All

AIRBAG

Symptom List:

SAFING SENSOR SHORTED (ACTIVE)
SAFING SENSOR SHORTED (STORED)

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **SAFING SENSOR SHORTED (ACTIVE)**.

POSSIBLE CAUSES
SAFING SENSOR SHORTED

SAFING SENSOR SHORTED (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
56	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>When Safing Sensor Safing Sensor Shorted code is present, (active or stored), the Airbag Control Module (ACM) is defective.</p> <p>View repair options.</p> <p>Repair</p> <p>If Safing Sensor Shorted code is present, (active or stored), the Airbag Control Module is defective. Replace the ACM in accordance with Service Instructions. WARNING: Disconnect the battery and wait 2 min. before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST VER-1A.</p>	All

AIRBAG

Symptom:

WARNING LAMP OPEN/SHORTED (ACTIVE)

When Monitored and Set Condition:

WARNING LAMP OPEN/SHORTED (ACTIVE)

When Monitored: Continuously with the ignition on.

Set Condition: ACM monitors CCD Bus for airbag warning lamp diagnostic message from instrument cluster. Message is transmitted every second, and upon change of lamp state, by cluster. The message will contain the status of the bulb and the bulb driver.

POSSIBLE CAUSES
WARNING LAMP OPEN/SHORT DTC
MIC BULB DEFECTIVE
MIC DRIVER DEFECTIVE
MIC DRIVER OR BULB NO RESPONSE
ACTIVE DTC PRESENT
ACM DEF, MIC BULB CIRCUIT
ACM DEF, WARNING LAMP CIRCUIT
ACM DEF, WARNING LAMP CKT OPEN/SHORT

WARNING LAMP OPEN/SHORTED (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
57	<p>Ensure that the battery is fully charged.</p> <p>Observe the Airbag Warning Lamp and turn Ignition Off wait 5 seconds then turn Ignition On (Engine Off).</p> <p>Did the Airbag Warning Lamp come On ?</p> <p>Yes → Go To 58</p> <p>No → Go To 63</p>	All
58	<p>Observe the Airbag Warning Lamp and turn Ignition Off wait 5 seconds then turn Ignition On (Engine Off).</p> <p>Does the Airbag Warning Lamp stay On ?</p> <p>Yes → Go To 59</p> <p>No → Go To 62</p>	All
59	<p>Observe the Airbag Warning Lamp and turn Ignition Off wait 5 seconds then turn Ignition On (Engine Off).</p> <p>With the DRB read the active DTC's.</p> <p>NOTE: WARNING LAMP OPEN/SHORTED code must be the only active DTC.</p> <p>Is the WARNING LAMP OPEN/SHORTED an active DTC ?</p> <p>Yes → Replace Instrument Cluster. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 60</p>	All
60	<p>Observe the Airbag Warning Lamp and turn Ignition Off wait 5 seconds then turn Ignition On (Engine Off).</p> <p>With the DRB read the active DTC's.</p> <p>Are there any active DTCs ?</p> <p>Yes → Select appropriate symptom from symptom list and continue with diagnosis. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 61</p>	All
61	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>If there are no potential causes remaining, the Airbag Control Module is assumed to be defective.</p> <p>View repair options.</p> <p>Yes → Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All

WARNING LAMP OPEN/SHORTED (ACTIVE) — Continued

TEST	ACTION	APPLICABILITY
62	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced. Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. If there are no potential causes remaining, the Airbag Control Module is assumed to be defective. View repair options.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All
63	<p>Turn Ignition Off wait 5 seconds then turn Ignition On (Engine Off). Using the DRB, select PASSIVE RESTRAINTS, AIRBAG, MONITOR DISPLAY, and then WARNING LAMP STATUS. Using the DRB read the MIC DRIVER STATE and the MIC BULB STATE. Does the DRB show MIC DRIVER OR BULB STATE: NO RESPONSE ?</p> <p>Yes → Refer to Symptom list for problems related to Instrument Cluster. Perform AIRBAG VERIFICATION TEST VER-1A</p> <p>No → Go To 64</p>	All
64	<p>Turn Ignition Off wait 5 seconds then turn Ignition On (Engine Off). Using the DRB, select PASSIVE RESTRAINTS, AIRBAG, MONITOR DISPLAY, and then WARNING LAMP STATUS. Using the DRB read the MIC DRIVER STATE. Does the DRB show MIC DRIVER STATE: OK ?</p> <p>Yes → Go To 65</p> <p>No → Replace Instrument Cluster. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All
65	<p>Turn Ignition Off wait 5 seconds then turn Ignition On (Engine Off). Using the DRB, select PASSIVE RESTRAINTS, AIRBAG, MONITOR DISPLAY, and then WARNING LAMP STATUS. With the DRB read the MIC BULB STATE. Does the DRB show MIC BULB STATE: OK ?</p> <p>Yes → Go To 66</p> <p>No → Replace bulb. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All
66	<p>WARNING: If the Airbag Control Module is dropped at any time, it must be replaced. Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding. If there are no potential causes remaining, the Airbag Control Module is assumed to be defective. View repair options.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST VER-1A</p>	All

Symptom:*** AIRBAG WARNING LAMP ON / NO ACTIVE CODES PRESENT**

TEST	ACTION	APPLICABILITY
67	Ensure the battery is fully charged. With the DRB read the active codes. With no active codes present, is the Airbag Warning Lamp ON? Yes → Refer to symptom WARNING LAMP OPEN/SHORTED (ACTIVE) in the AIRBAG category. No → Test Complete.	All

COMMUNICATION

Symptom:

*** BUS (+) AND BUS (-) SHORTED TOGETHER**

POSSIBLE CAUSES
CCD BUS (+) SHORTED TO CCD BUS (-)
AIRBAG CONTROL MODULE BUS (+) TO BUS (-) SHORT
SKIM- BUS(+) / BUS (-) SHORTED TOGETHER
POWERTRAIN CONTROL MODULE BUS (+) TO BUS (-) SHORT
CMTC BUS (+) TO BUS (-) SHORT
TRANSMISSION CONTROL MODULE BUS (+) TO BUS (-) SHORT
INSTRUMENT CLUSTER BUS (+) TO (-) SHORT
REMOTE KEYLESS ENTRY BUS (+) TO BUS (-) SHORT
DRB OR DRB CABLE BUS (+) TO BUS (-) SHORT

*** BUS (+) AND BUS (-) SHORTED TOGETHER — Continued**

TEST	ACTION	APPLICABILITY
68	<p>Note: Answer the question whether a module is present or not. Key Off. Disconnect the Powertrain Control Module. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS (+) & BUS (-) SHORTED TOGETHER?</p> <p>Yes → Go To 69</p> <p>No → Replace the Powertrain Control Module. Perform Verification TEST VER-2A</p>	All
69	<p>Note: Answer the question whether a module is present or not. Key Off. Disconnect the Instrument Cluster. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS (+) & BUS (-) SHORTED TOGETHER?</p> <p>Yes → Go To 70</p> <p>No → Replace the Instrument Cluster. Perform Verification TEST VER-2A</p>	All
70	<p>Note: Answer the question whether a module is present or not. Key Off. Disconnect the Transmission Control Module (if equipped). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS (+) & BUS (-) SHORTED TOGETHER?</p> <p>Yes → Go To 71</p> <p>No → Replace the Transmission Control Module. Perform Verification TEST VER-2A</p>	All
71	<p>Note: Answer the question whether a module is present or not. Disconnect the Compass/Mini-Trip Computer (CMTC) if equipped. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS (+) & BUS (-) SHORTED TOGETHER?</p> <p>Yes → Go To 72</p> <p>No → Replace the Compass/Mini-Trip Computer (CMTC). Perform Verification TEST VER-2A</p>	All
72	<p>Note: Answer the question whether a module is present or not. Disconnect the Remote Keyless Entry Module (if equipped). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS (+) & BUS (-) SHORTED TOGETHER?</p> <p>Yes → Go To 73</p> <p>No → Replace the Remote Keyless Entry Module. Perform Verification TEST VER-2A</p>	All

COMMUNICATION

* BUS (+) AND BUS (-) SHORTED TOGETHER — Continued

TEST	ACTION	APPLICABILITY
73	<p>Note: Answer the question whether a module is present or not. Warning: Turn Ignition Off. Wait 2 mins. before proceeding. Disconnect the Smart Key Immobilizer Module. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS(+) AND BUS(-) SHORTED TOGETHER?</p> <p>Yes → Go To 74</p> <p>No → Replace the Sentry Key Immobilizer Module. Perform Body Verification TEST VER-2A</p>	All
74	<p>Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding. Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected. Warning: If the Airbag Control Module is dropped at any time, it must be replaced. Disconnect the Airbag Control Module Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS (+) & BUS (-) SHORTED TOGETHER ?</p> <p>Yes → Go To 75</p> <p>No → Replace the Airbag Control Module in accordance with Service instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding. Perform Body Verification TEST VER-2A.</p>	All
75	<p>Disconnect the DRB from the Data Link Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter measure between Bus (+) and Bus (-) Ckts at the Data Link Conn. Is the resistance below 100.0 ohms?</p> <p>Yes → Repair CCD Bus (-) Ckt short to CCD Bus (+) Ckt. Perform Verification TEST VER-2A</p> <p>No → Replace the DRB or DRB Cable as necessary. Perform Verification TEST VER-2A</p>	All

Symptom List:

- * **BUS BIAS LEVEL TOO HIGH**
- * **BUS BIAS LEVEL TOO LOW**

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be * **BUS BIAS LEVEL TOO HIGH.**

POSSIBLE CAUSES

SKIM- BUS BIAS TOO HI/LOW
INSTRUMENT CLUSTER GROUND CIRCUIT OPEN
POWERTRAIN CONTROL MODULE CAUSES CCD BUS BIAS TOO HI/LOW
DLC CCD BUS (+) CIRCUIT SHORTED TO GND
INSTRUMENT CLUSTER CCD BUS (-) CIRCUIT OPEN
INSTRUMENT CLUSTER CCD BUS (-) CIRCUIT SHORTED TO GND
CMTC CAUSES CCD BUS BIAS TOO HI/LOW
TRANSMISSION CONTROL MODULE CAUSES CCD BUS TOO HI/LOW
REMOTE KEYLESS ENTRY CAUSES CCD BUS BIAS TOO HI/LOW
DRB OR DRB CABLE AFFECTING BUS BIAS VOLTAGE
INSTRUMENT CLUSTER CAUSES CCD BUS BIAS TOO HI/LOW
INSTRUMENT CLUSTER CCD BUS (+) CIRCUIT OPEN

COMMUNICATION

* BUS BIAS LEVEL TOO HIGH — Continued

TEST	ACTION	APPLICABILITY
76	<p>Disconnect the DRB from the Data Link Connector. Check connectors - Clean / repair as necessary. Ensure Ignition is on (Engine Off). Using a voltmeter measure the CCD Bus (+) Circuit (Cav 3) to ground. Is the voltage between 1.8 and 2.6 volts?</p> <p>Yes → Go To 77</p> <p>No → Go To 78</p>	All
77	<p>Disconnect the DRB from the Data Link Connector. Check connectors - Clean / repair as necessary. Ensure Ignition is on (Engine Off). Using a voltmeter measure the CCD Bus (-) Circuit (Cav 11) to ground. Is the voltage between 1.8 and 2.6 volts?</p> <p>Yes → Replace the DRB or DRB Cable as necessary. Perform Verification TEST VER-2A</p> <p>No → Go To 78</p>	All
78	<p>Reconnect the DRB. Select SYSTEM MONITOR - CCD BUS TEST. Note: Answer the question whether a module is present or not. Key Off. Disconnect the Transmission Control Module connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Transmission Control Module. Perform Verification TEST VER-2A</p> <p>No → Go To 79</p>	All
79	<p>Note: Answer the question whether a module is present or not. Reconnect the DRB if disconnected. Select SYSTEM MONITOR - CCD BUS TEST. Key Off. Disconnect the Powertrain Control Module (PCM). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Powertrain Control Module. Perform Verification TEST VER-2A</p> <p>No → Go To 80</p>	All
80	<p>Note: Answer the question whether a module is present or not. Reconnect the DRB if disconnected. Select SYSTEM MONITOR - CCD BUS TEST. Disconnect the Compass/Mini-Trip Computer Connector (if equipped). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Compass/Mini-Trip Computer Module. Perform Verification TEST VER-2A</p> <p>No → Go To 81</p>	All

* BUS BIAS LEVEL TOO HIGH — Continued

TEST	ACTION	APPLICABILITY
81	<p>Reconnect the DRB. Select SYSTEM MONITOR - CCD BUS TEST. Note: Answer the question whether a module is present or not. Disconnect the Remote Keyless Entry Module (if equipped). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Remote Keyless Entry Module. Perform Verification TEST VER-2A</p> <p>No → Go To 82</p>	All
82	<p>Note: Answer the question whether a module is present or not. Disconnect the Smart Key Immobilizer Module. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Sentry Key Immobilizer Module. Perform Body Verification TEST VER-2A</p> <p>No → Go To 83</p>	All
83	<p>Key Off. Remove the Instrument Cluster. Check connectors - Clean / repair as necessary. Note: Ensure Interior Lights are off. Disconnect the DRB from the DLC Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter measure the Ground Ckt (Cav 6 Left Conn) to ground. Is the resistance above 5.0 ohms?</p> <p>Yes → Repair the open Ground Circuit. Perform Verification TEST VER-2A</p> <p>No → Go To 84</p>	All
84	<p>Key Off. Remove the Instrument Cluster if not already removed. Check connectors - Clean / repair as necessary. Note: Ensure Interior Lights are off. Disconnect the DRB from the DLC Connector if not already disconnected. Check connectors - Clean / repair as necessary. Connect a jumper from the CCD Bus (-) (Cav 11 in DLC) to ground. Using an ohmmeter measure the CCD Bus (-) Ckt Instrument Cluster (Cav 1 Right Conn) to gnd. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 85</p> <p>No → Repair the open CCD BUS(-) Circuit. Perform Verification TEST VER-2A</p>	All

COMMUNICATION

* BUS BIAS LEVEL TOO HIGH — Continued

TEST	ACTION	APPLICABILITY
85	<p>Key Off. Remove the Instrument Cluster if not already removed. Check connectors - Clean / repair as necessary. Note: Ensure Interior Lights are off. Disconnect the DRB from the DLC Connector if not already disconnected. Check connectors - Clean / repair as necessary. Disconnect the jumper wire if installed. Using an ohmmeter measure the CCD Bus(-) Ckt Instrument Cluster (Cav 1 Right Conn) to gnd. Is the resistance below 1000 (1K) ohms?</p> <p>Yes → Repair the CCD BUS(-) Circuit for a short to ground. Perform Verification TEST VER-2A</p> <p>No → Go To 86</p>	All
86	<p>Key Off. Remove the Instrument Cluster if not already removed. Check connectors - Clean / repair as necessary. Note: Ensure Interior Lights are off. Disconnect the DRB from the DLC Connector if not already disconnected. Check connectors - Clean / repair as necessary. Connect a jumper from the CCD Bus (+) (Cav 3 in DLC) to ground. Using an ohmmeter measure the CCD Bus (+) Ckt Instrument Cluster (Cav 2 Right Conn) to gnd. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 87</p> <p>No → Repair the open CCD BUS(+) Circuit. Perform Verification TEST VER-2A</p>	All
87	<p>Key Off. Remove the Instrument Cluster if not already removed. Check connectors - Clean / repair as necessary. Note: Ensure Interior Lights are off. Disconnect the DRB from the DLC Connector if not already disconnected. Check connectors - Clean / repair as necessary. Disconnect the jumper wire if installed. Using an ohmmeter measure the CCD Bus (+) Ckt Instrument Cluster (Cav 2 Right Conn) to gnd. Is the resistance below 1000 (1K) ohms?</p> <p>Yes → Repair the CCD BUS(+) Circuit for a short to ground. Perform Verification TEST VER-2A</p> <p>No → Replace the Instrument Cluster. Perform Verification TEST VER-2A</p>	All

Symptom List:

- * **BUS(+) AND BUS(-) OPEN**
- * **BUS(+) OPEN OR BUS (-) OPEN**

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be * **BUS(+) AND BUS(-) OPEN**.

POSSIBLE CAUSES
DATA LINK CONNECTOR CCD BUS (+) OPEN
DATA LINK CONNECTOR CCD BUS (-) OPEN
DRB OR CABLE CAUSES BUS BIAS VOLTAGE OUT OF RANGE
INSTRUMENT CLUSTER CAUSING CCD BUS OPEN FAILURE

COMMUNICATION

* BUS(+) AND BUS(-) OPEN — Continued

TEST	ACTION	APPLICABILITY
88	<p>Disconnect the DRB from the Data Link Connector. Check connectors - Clean / repair as necessary. Ensure Ignition is on (Engine Off). Using a voltmeter measure the CCD Bus (+) Circuit (Cav 3) to ground. Is the voltage between 2.3 and 2.6 volts?</p> <p>Yes → Go To 89 No → Go To 90</p>	All
89	<p>Disconnect the DRB from the Data Link Connector. Check connectors - Clean / repair as necessary. Ensure Ignition is on (Engine Off). Using a voltmeter measure the CCD Bus (-) Circuit (Cav 11) to ground. Is the voltage between 2.3 and 2.6 volts?</p> <p>Yes → Replace the DRB or DRB Cable as necessary. Perform Verification TEST VER-2A</p> <p>No → Go To 90</p>	All
90	<p>Remove the Instrument Cluster. Check connectors - Clean / repair as necessary. Connect a jumper from the CCD Bus (-) (Cav 11 in DLC) to ground. Using an ohmmeter measure the CCD Bus (-) Ckt Instrument Cluster (Cav 1 Right Conn) to gnd. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 91 No → Repair the open CCD Bus (-) Circuit. Perform Verification TEST VER-2A</p>	All
91	<p>Remove the Instrument Cluster. Check connectors - Clean / repair as necessary. Disconnect the jumper wire if installed. Connect a jumper from the CCD Bus (+) (Cav 3 in DLC) to ground. Using an ohmmeter measure the CCD Bus (+) Ckt Instrument Cluster (Cav 2 Right Conn) to gnd. Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Instrument Cluster. Perform Verification TEST VER-2A</p> <p>No → Repair the open CCD Bus (+) Circuit. Perform Verification TEST VER-2A</p>	All

Symptom:

*** DRB BLANK SCREEN**

POSSIBLE CAUSES
DRB BLANK SCREEN

COMMUNICATION

* DRB BLANK SCREEN — Continued

TEST	ACTION	APPLICABILITY
92	Disconnect the DRB from the Data Link Connector. Ensure there is a good ground at Cavities 4 and 5. Ensure there is a 12-volt supply at Cavity 16. If not, inspect Fuse #17 in PDC. Try another DRB Cable. Try another DRB. Is the DRB screen blank? Yes → Replace the DRB and or DRB Cable. Perform Verification TEST VER-2A No → Test Complete.	All

Symptom:*** NO BUS BIAS****POSSIBLE CAUSES**

FUSE #9 DEFECTIVE

FUSED IGN SWITCH OUTPUT CIRCUIT OPEN

FUSED IGN SWITCH OUTPUT CIRCUIT SHORTED TO GND

DRB OR CABLE CAUSES BUS BIAS VOLTAGE OUT OF RANGE

IGN SWITCH OUTPUT OPEN

INSTRUMENT CLUSTER CAUSING NO BUS BIAS FAILURE

COMMUNICATION

* NO BUS BIAS — Continued

TEST	ACTION	APPLICABILITY
93	<p>Disconnect the DRB from the Data Link Connector. Check connectors - Clean / repair as necessary. Ensure Ignition is on (Engine Off). Using a voltmeter measure the CCD Bus (+) Circuit (Cav 3) to ground. Is the voltage between 2.3 and 2.6 volts?</p> <p>Yes → Go To 94 No → Go To 95</p>	All
94	<p>Disconnect the DRB from the Data Link Connector. Check connectors - Clean / repair as necessary. Ensure Ignition is on (Engine Off). Using a voltmeter measure the CCD Bus (-) Circuit (Cav 11) to ground. Is the voltage between 2.3 and 2.6 volts?</p> <p>Yes → Replace the DRB or DRB Cable as necessary. Perform Verification TEST VER-2A No → Go To 95</p>	All
95	<p>Ensure Ignition is On (Engine Off). Using a voltmeter measure the Fused Ignition Switch Output side of Fuse #9. Is the voltage above 10.0 volts?</p> <p>Yes → Go To 96 No → Go To 97</p>	All
96	<p>Remove the Instrument Cluster. Check connectors - Clean / repair as necessary. Using a voltmeter measure the Fused Ignition Switch Output Ckt (Cav 8). Is the voltage above 10.0 volts?</p> <p>Yes → Replace the Instrument Cluster. Perform Verification TEST VER-2A No → Repair the open Fused Ignition Switch Output Circuit. Perform Verification TEST VER-2A</p>	All
97	<p>Remove Fuse #9. Key Off. Using an ohmmeter, measure the Fused Ignition Switch Output Circuit to ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Repair the Fused Ignition Switch Output Ckt for a short to ground and replace the fuse. Perform Verification TEST VER-2A No → Go To 98</p>	All
98	<p>Turn Ignition On (Engine Off). Using a voltmeter measure the Ignition Switch Output Ckt at Fuse #9. Is the voltage above 10.0 volts?</p> <p>Yes → Replace the fuse. Perform Verification TEST VER-2A No → Repair the open Ignition Switch Output Circuit. Perform Verification TEST VER-2A</p>	All

Symptom:*** NO RESPONSE FROM AIRBAG CONTROL MODULE****POSSIBLE CAUSES**

ACM GROUND CIRCUIT OPEN

CCD BUS (+) CKT OPEN

CCD BUS (-) CKT OPEN

IGN SWITCH OUTPUT CKT (RUN/START) OPEN AT FUSE #27

DEFECTIVE FUSE #27

FUSED IGN SW OUTPUT RUN/ST SHORTED TO GND ACM DISC

FUSED IGN SW OUTPUT RUN/START SHORT TO GND AT ACM

FUSED IGN SW RUN/START SHORTED TO GND AT FUSE #27

FUSED IGNITION SWITCH OUTPUT CKT (RUN/START) OPEN

IGN SW OUTPUT RUN/START CKT OPEN (FUSE 27 IS OPEN)

AIRBAG SYSTEM FAILURE

AIRBAG SYSTEM PROBLEM

*** NO RESPONSE FROM AIRBAG CONTROL MODULE — Continued**

TEST	ACTION	APPLICABILITY
99	Remove and inspect Fuse #27. Is the fuse open? Yes → Go To 100 No → Go To 105	All
100	Turn Ignition On (Engine Off). Using a voltmeter measure the Ignition Switch Output Run/Start Circuit between Fuse #27 and ground. Is the voltage above 10.0 volts? Yes → Go To 101 No → Repair the open Ignition Switch Output Run/Start Circuit. Perform Verification TEST VER-2A	All
101	Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding. Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected. Warning: If the Airbag Control Module is dropped at any time, it must be replaced. Using an ohmmeter measure Fused Ignition Switch Output Run/Start between Fuse #27 and ground. Is the resistance below 5.0 ohms? Yes → Go To 102 No → Go To 103	All
102	Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding. Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected. Warning: If the Airbag Control Module is dropped at any time, it must be replaced. Disconnect the Airbag Control Module Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter measure Fused Ignition Switch Output Run/Start between Fuse #27 and ground. Is the resistance below 5.0 ohms? Yes → Repair the Fused Ignition Switch Output Run/Start Ckt for a short to ground and replace the fuse. Perform Verification TEST VER-2A No → Replace the Fuse. Replace the Airbag Control Module in accordance with Service instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding. Replace the Fuse.	All

TEST	ACTION	APPLICABILITY
103	<p>Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Note: When reconnecting the DAB Module Battery must be connected.</p> <p>Warning: If the Airbag Control Module is replaced.</p> <p>Disconnect the Airbag Control Module Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using an ohmmeter measure Fused Ignition Switch Output Run/Start at Airbag Control Module 22-way Connector (Cav 17) to ground.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Repair the Fused Ignition Switch Output Run/Start Ckt for a short to ground. Perform Verification TEST VER-2A</p> <p>No → Go To 104</p>	All
104	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Disconnect the Airbag Control Module 22-way Connector or if not already disconnected.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using an ohmmeter measure the resistance between the Fused Ignition Switch Output Run/Start Ckt at the ACM 22-way Connector (Cav 17) and the Fused Ignition Switch Output Run/Start Ckt at Fuse #27.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the fuse. Perform Verification TEST VER-2A</p> <p>No → Repair the open Fused Ignition Switch Run/Start Output Ckt and replace the fuse. Perform Verification TEST VER-2A</p>	All
105	<p>Using a voltmeter, measure the Ignition Switch Output Circuit between the Fuse #27 and ground.</p> <p>Is the voltage above 10.0 volts?</p> <p>Yes → Go To 106</p> <p>No → Repair open Ignition Switch Output Run/Start Ckt. Perform Verification TEST VER-2A</p>	All
106	<p>Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Note: When reconnecting the DAB Module Battery must be connected.</p> <p>Warning: If the Airbag Control Module is replaced.</p> <p>Reinstall the fuse.</p> <p>Disconnect the Airbag Control Module Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Ignition On (Engine Off).</p> <p>Using a voltmeter, measure the Fused Ignition Switch Output Run/Start Circuit between the ACM 22-way Conn (Cav 17) and ground.</p> <p>Is the voltage above 10.0 volts?</p> <p>Yes → Go To 107</p> <p>No → Repair open Fused Ignition Switch Output Run/Start Circuit. Perform Verification TEST VER-2A</p>	All

COMMUNICATION

* NO RESPONSE FROM AIRBAG CONTROL MODULE — Continued

TEST	ACTION	APPLICABILITY
107	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected.</p> <p>Warning: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>Disconnect the Airbag Control Module 22-way Connector if not already disconnected.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition Off.</p> <p>Using an ohmmeter measure the Gnd Ckt between the ACM Conn and ground.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 108</p> <p>No → Repair open Ground Ckt. Perform Verification TEST VER-2A</p>	All
108	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected.</p> <p>Warning: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>Disconnect the Airbag Control Module 22-way Connector if not already disconnected.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition On (Engine Off).</p> <p>Using a voltmeter measure the CCD Bus (+) Circuit (Cav 19) between the ACM Connector and ground.</p> <p>Is the voltage between 1.8 and 2.6 volts?</p> <p>Yes → Go To 109</p> <p>No → Repair the open CCD Bus (+) Ckt. Perform Verification TEST VER-2A</p>	All
109	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected.</p> <p>Warning: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>Disconnect the Airbag Control Module 22-way Connector if not already disconnected.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition On (Engine Off).</p> <p>Using a voltmeter measure the CCD Bus (-) Circuit (Cav 18) between the ACM Connector and ground.</p> <p>Is the voltage between 1.8 and 2.6 volts?</p> <p>Yes → Replace the Airbag Control Module in accordance with Service instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>No → Repair the open CCD Bus (-) Ckt. Perform Verification TEST VER-2A</p>	All

Symptom:*** NO RESPONSE FROM COMPASS MINI-TRIP COMPUTER****POSSIBLE CAUSES**

CCD BUS (-) CIRCUIT OPEN

CMTC CCD BUS (+) CIRCUIT OPEN

FUSED IGNITION SWITCH OUTPUT CKT OPEN

CMTC INTERNAL BUS SHORT TO GROUND

COMMUNICATION

* NO RESPONSE FROM COMPASS MINI-TRIP COMPUTER — Continued

TEST	ACTION	APPLICABILITY
110	<p>Key Off, disconnect the CMTC 12-way Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Using a voltmeter measure the Fused Ign Switch Output Ckt (Cav 6). Is the voltage above 10.0 volts?</p> <p>Yes → Go To 111</p> <p>No → Repair the open Fused Ignition Switch Output Circuit. Perform Verification TEST VER-2A</p>	All
111	<p>Key Off, disconnect the CMTC 12-way Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Connect a jumper wire from CCD Bus (-) to ground. With the DRB perform the Bus Test. Does the DRB show BUS SHORTED TO GROUND?</p> <p>Yes → Go To 112</p> <p>No → Repair the open CCD BUS (-) Ckt from Compass/Mini-trip to Data Link Connector. Perform Verification TEST VER-2A</p>	All
112	<p>Key Off, disconnect the CMTC 12-way Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Connect a jumper wire from CCD Bus (+) to ground. Does the DRB show BUS SHORTED TO GROUND?</p> <p>Yes → Replace the Compass/Mini-trip Module. Perform Verification TEST VER-2A</p> <p>No → Repair the open CCD BUS (+) Ckt from Compass/Mini-trip to Data Link Connector. Perform Verification TEST VER-2A</p>	All

Symptom:*** NO RESPONSE FROM INSTRUMENT CLUSTER****POSSIBLE CAUSES**

IC CCD BUS (+) CKT OPEN

IC CCD BUS (-) CKT OPEN

INSTRUMENT CLUSTER CCD BUS OPEN

COMMUNICATION

* NO RESPONSE FROM INSTRUMENT CLUSTER — Continued

TEST	ACTION	APPLICABILITY
113	<p>Remove the Instrument Cluster.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using the DRB turn on the Internal CCD Bus Bias under SYSTEM MONITORS, CCD BUS VOLTAGE.</p> <p>Connect a jumper wire from CCD Bus (+) (Cavity 2) to ground.</p> <p>Observe the CCD Bus voltage on the DRB.</p> <p>Did the voltage drop to approximately 0.0 volts?</p> <p>Yes → Go To 114</p> <p>No → Repair the open CCD Bus (+) Circuit.</p> <p>Perform Verification TEST VER-2A</p>	All
114	<p>Remove the Instrument Cluster if not already removed.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using the DRB turn on the Internal CCD Bus Bias under SYSTEM MONITORS, CCD BUS VOLTAGE or leave on if already on.</p> <p>Connect a jumper wire from CCD Bus (-) (Cavity 1) to ground.</p> <p>Observe the CCD Bus voltage on the DRB.</p> <p>Did the voltage drop to approximately 0.0 volts?</p> <p>Yes → Replace the Instrument Cluster.</p> <p>Perform Verification TEST VER-2A</p> <p>No → Repair the open CCD Bus (-) Circuit.</p> <p>Perform Verification TEST VER-2A</p>	All

Symptom:*** NO RESPONSE FROM POWERTRAIN CONTROL MODULE**

POSSIBLE CAUSES
ENGINE DOES NOT RUN
CCD BUS (+) CIRCUIT OPEN (PCM)
CCD BUS (-) CKT OPEN
POWERTRAIN CONTROL MODULE CCD BUS NO RESPONSE

COMMUNICATION

* NO RESPONSE FROM POWERTRAIN CONTROL MODULE — Continued

TEST	ACTION	APPLICABILITY
115	Does the Engine run? Yes → Go To 116 No → Refer to appropriate Symptoms list for problems related to Powertrain diagnostics. Perform Verification TEST VER-2A	All
116	Key off. Disconnect the Powertrain Control Module Connectors. Check connectors - Clean / repair as necessary. Connect a jumper wire between CCD Bus (+) Ckt and gnd. Turn Ignition On (Engine Off). With the DRB perform the CCD Bus Test. Does the DRB show SHORT TO GROUND? Yes → Go To 117 No → Repair the open CCD Bus (+) Ckt from PCM to Data Link Connector. Perform Verification TEST VER-2A	All
117	Key off. Disconnect the Powertrain Control Module Connectors. Check connectors - Clean / repair as necessary. Connect a jumper wire between CCD Bus (-) Ckt and gnd. Turn Ignition On (Engine Off). With the DRB perform the CCD Bus Test. Does the DRB show SHORT TO GROUND? Yes → Replace (PCM) Powertrain Control Module. Perform Verification TEST VER-2A No → Repair the open CCD Bus (-) Ckt from PCM to Data Link Connector. Perform Verification TEST VER-2A	All

Symptom:*** NO RESPONSE FROM REMOTE KEYLESS ENTRY**

POSSIBLE CAUSES
RKE CCD BUS (+) CIRCUIT OPEN
RKE CCD BUS (-) CIRCUIT OPEN
FUSED CAV 2 B(+) CIRCUIT OPEN
FUSED CAV 8 B(+) CIRCUIT OPEN
REMOTE KEYLESS ENTRY MODULE WON'T RESPOND

COMMUNICATION

* NO RESPONSE FROM REMOTE KEYLESS ENTRY — Continued

TEST	ACTION	APPLICABILITY
118	<p>Disconnect the Transmission Control Module Connector if not already disconnected. Check connectors - Clean / repair as necessary. Connect a jumper wire between CCD Bus (+) Ckt and gnd. Ignition On (Engine Off). With the DRB perform the CCD Bus Test. Does the DRB show SHORT TO GROUND?</p> <p>Yes → Go To 119</p> <p>No → Repair the open CCD Bus (+) Ckt. Perform Verification TEST VER-2A</p>	All
119	<p>Disconnect the Transmission Control Module Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Using a voltmeter measure the Fused B(+) Circuit (Cav 2). Is the voltage above 10.0 volts?</p> <p>Yes → Go To 120</p> <p>No → Repair the open Fused B(+) Circuit. Perform Verification TEST VER-2A</p>	All
120	<p>Disconnect the Transmission Control Module Connector if not already disconnected. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Using a voltmeter measure the Fused B(+) Circuit (Cav 8). Is the voltage above 10.0 volts?</p> <p>Yes → Go To 121</p> <p>No → Repair the open Fused B(+) Circuit. Perform Verification TEST VER-2A</p>	All
121	<p>Disconnect the Transmission Control Module Connector if not already disconnected. Check connectors - Clean / repair as necessary. Connect a jumper wire between CCD Bus (-) Ckt and gnd. Ignition On (Engine Off). With the DRB perform the CCD Bus Test. Does the DRB show SHORT TO GROUND?</p> <p>Yes → Replace the RKE module. Perform Verification TEST VER-2A</p> <p>No → Repair the open CCD Bus (-) Ckt. Perform Verification TEST VER-2A</p>	All

Symptom:*** NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE****POSSIBLE CAUSES**

OPEN CCD BUS (+) CKT- SKIM

OPEN CCD BUS (-) CKT- SKIM

OPEN FUSED B(+) CKT- SKIM

OPEN FUSED IGNITION SWITCH OUTPUT CIRCUIT- SKIM

OPEN GROUND CIRCUIT- SKIM

DEFECTIVE SENTRY KEY IMMOBLIZER MODULE - NO RESPONSE

COMMUNICATION

* NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE — Continued

TEST	ACTION	APPLICABILITY
122	<p>Turn the Ignition On (Engine Off). Using the DRB, select: BODY COMPUTER, SYSTEM TEST, PCM MONITOR. Does the DRB display PCM ACTIVE ON THE BUS?</p> <p>Yes → Go To 123</p> <p>No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p>	All
123	<p>Key Off. Disconnect the SKIM Module Connector. Check connectors - Clean/repair as necessary. Using an ohmmeter, measure the Ground Circuit in Cavities #2 and #4. Is the resistance below 5.0 ohms on either circuit?</p> <p>Yes → Go To 124</p> <p>No → Repair the open Ground Circuit. Perform Body Verification TEST VER-2A</p>	All
124	<p>Key Off. Disconnect the SKIM Module Connector. Check connectors - Clean/repair as necessary. Turn the Ignition On (Engine Off). Using a voltmeter, measure the Fused B (+) Circuit at the Smart Key Immobilizer Connector. Is the voltage above 10.0 volts?</p> <p>Yes → Go To 125</p> <p>No → Repair the open Fused B (+) Circuit. Perform Body Verification TEST VER-2A</p>	All
125	<p>Key Off. Disconnect the SKIM Module Connector. Check connectors - Clean/repair as necessary. Turn the Ignition On (Engine Off). Using a voltmeter, measure the Fused Ignition Switch Output Circuit at the Smart Key Immobilizer Connector. Is the voltage above 10.0 volts?</p> <p>Yes → Go To 126</p> <p>No → Repair the open Fused Ignition Switch Output Circuit. Perform Body Verification TEST VER-2A</p>	All
126	<p>Key Off. Disconnect the SKIM Module Connector. Check connectors - Clean/repair as necessary. Turn the Ignition On (Engine Off). Connect a ground wire between CCD Bus (-) and ground in the Smart Key Immobilizer Module Connector. Using the DRB, perform the Bus Test. Does the DRB show BUS SHORTED TO GROUND?</p> <p>Yes → Go To 127</p> <p>No → Repair the open CCD Bus (-) Circuit. Perform Body Verification TEST VER-2A</p>	All

* NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE — Continued

TEST	ACTION	APPLICABILITY
127	<p>Key Off. Disconnect the SKIM Module Connector. Check connectors - Clean/repair as necessary. Turn the Ignition On (Engine Off). Connect a ground wire between CCD Bus (+) and ground in the Smart Key Immobilizer Module Connector. Using the DRB, perform the Bus Test. Does the DRB show BUS SHORTED TO GROUND?</p> <p>Yes → Replace the Sentry Key Immobilizer Module and program the Keys. Perform Body Verification TEST VER-2A</p> <p>No → Repair the open CCD Bus (+) Circuit. Perform Body Verification TEST VER-2A</p>	All

COMMUNICATION

Symptom:

*** NO RESPONSE FROM TRANSMISSION CONTROL MODULE**

POSSIBLE CAUSES
FUSED IGNITION SWITCH OUTPUT CIRCUIT OPEN
CCD BUS (+) CIRCUIT OPEN (TCM)
CCD BUS (-) CIRCUIT OPEN (TCM)
TRANSMISSION CONTROL MODULE CCD BUS NO RESPONSE

* NO RESPONSE FROM TRANSMISSION CONTROL MODULE — Continued

TEST	ACTION	APPLICABILITY
128	<p>Disconnect the Transmission Control Module Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Using a voltmeter measure the Fused Ignition Switch Output Circuit. Is the voltage above 10.0 volts?</p> <p>Yes → Go To 129</p> <p>No → Repair the open Fused Ignition Switch Output Circuit. Perform Verification TEST VER-2A</p>	All
129	<p>Disconnect the Transmission Control Module Connector. Check connectors - Clean / repair as necessary. Ignition On (Engine Off). Connect a jumper wire between CCD Bus (+) Ckt and gnd. With the DRB perform the CCD Bus Test. Does the DRB show SHORT TO GROUND?</p> <p>Yes → Go To 130</p> <p>No → Repair the open CCD Bus (+) Ckt. Perform Verification TEST VER-2A</p>	All
130	<p>Disconnect the Transmission Control Module Connector. Check connectors - Clean / repair as necessary. Ignition On (Engine Off). Connect a jumper wire between CCD Bus (-) Ckt and gnd. With the DRB perform the CCD Bus Test. Does the DRB show SHORT TO GROUND?</p> <p>Yes → Replace (TCM) Transmission Control Module. Perform Verification TEST VER-2A</p> <p>No → Repair the open CCD Bus (-) Ckt. Perform Verification TEST VER-2A</p>	All

COMMUNICATION

Symptom:

*** NO TERMINATION**

POSSIBLE CAUSES
PCM & IC TERMINATORS OPEN
CCD BUS (+) CKT OPEN
CCD BUS (-) CKT OPEN

* NO TERMINATION — Continued

TEST	ACTION	APPLICABILITY
131	<p>Key Off. Disconnect the Powertrain Control Module Gray Connector. Check connectors - Clean / repair as necessary. Connect a jumper wire from CCD Bus (+) Ckt (Cav 30) to ground. Turn Ignition On (Engine Off). With the DRB perform a Bus Test. Does the DRB show BUS (+) SHORT TO GROUND?</p> <p>Yes → Go To 132</p> <p>No → Repair the open Bus(+) Circuit. Perform Verification TEST VER-2A</p>	All
132	<p>Key Off. Disconnect the Powertrain Control Module Gray Connector if not already disconnected. Check connectors - Clean / repair as necessary. Connect a jumper wire from CCD Bus (-) Ckt (Cav 28) to ground. Turn Ignition On (Engine Off). With the DRB perform a Bus Test. Does the DRB show BUS (-) SHORT TO GROUND?</p> <p>Yes → For this code to appear both Instrument Cluster and Powertrain Control Module terminators would have to be open. Replace the Powertrain Control Module and replace the Instrument Cluster. Perform Verification TEST VER-2A</p> <p>No → Repair the open CCD Bus (-) Ckt. Perform Verification TEST VER-2A</p>	All

COMMUNICATION

Symptom:

*** NOT RECEIVING BUS MESSAGES CORRECTLY**

POSSIBLE CAUSES
AIRBAG CONTROL MODULE INHIBITS CORRECT BUS MESSAGES
POWERTRAIN CONTROL MODULE CAUSES CCD BUS BIAS OUT OF RANGE
CMTIC CAUSES CCD BUS BIAS OUT OF RANGE
TRANSMISSION CONTROL MODULE CAUSES CCD BUS BIAS OUT OF RANGE
INSTRUMENT CLUSTER INHIBITS CORRECT BUS MESSAGES
REMOTE KEYLESS ENTRY CAUSES CCD BUS BIAS OUT OF RANGE
DRB OR DRB CABLE INHIBITS CORRECT BUS MESSAGES

* NOT RECEIVING BUS MESSAGES CORRECTLY — Continued

TEST	ACTION	APPLICABILITY
133	<p>Note: Answer the question whether a module is present or not. Reconnect the DRB if disconnected. Select SYSTEM MONITOR - CCD BUS TEST. Key Off. Disconnect the Powertrain Control Module (PCM). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Powertrain Control Module. Perform Verification TEST VER-2A</p> <p>No → Go To 134</p>	All
134	<p>Reconnect the DRB. Select SYSTEM MONITOR - CCD BUS TEST. Note: Answer the question whether a module is present or not. Key Off. Disconnect the Transmission Control Module connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Transmission Control Module. Perform Verification TEST VER-2A</p> <p>No → Go To 135</p>	All
135	<p>Note: Answer the question whether a module is present or not. Reconnect the DRB if disconnected. Select SYSTEM MONITOR - CCD BUS TEST. Disconnect the Compass/Mini-Trip Computer Connector (if equipped). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Compass/Mini-Trip Computer Module. Perform Verification TEST VER-2A</p> <p>No → Go To 136</p>	All
136	<p>Reconnect the DRB. Select SYSTEM MONITOR - CCD BUS TEST. Note: Answer the question whether a module is present or not. Disconnect the Remote Keyless Entry Module (if equipped). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Remote Keyless Entry Module. Perform Verification TEST VER-2A</p> <p>No → Go To 137</p>	All

COMMUNICATION

* NOT RECEIVING BUS MESSAGES CORRECTLY — Continued

TEST	ACTION	APPLICABILITY
137	<p>Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected.</p> <p>Warning: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>Disconnect the Airbag Control Module Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition On (Engine Off).</p> <p>Does the DRB show BUS OPERATIONAL?</p> <p>Yes → Replace the Airbag Control Module in accordance with Service instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>No → Go To 138</p>	All
138	<p>Try another DRB and Cable.</p> <p>Using the DRB perform the Bus Test.</p> <p>Does the DRB still show NOT RECEIVING MESSAGES CORRECTLY?</p> <p>Yes → Replace the Instrument Cluster. Perform Verification TEST VER-2A</p> <p>No → Replace the DRB or Cable as necessary. Perform Verification TEST VER-2A</p>	All

Symptom:*** SHORT TO 5 VOLTS****POSSIBLE CAUSES**

AIRBAG CONTROL MODULE SHORTED TO 5 VOLTS
SMART KEY IMMOBLIZER MODULE SHORTED TO 5 VOLTS
CCD BUS (+) SHORTED TO OUTPUT SPEED SENSOR SIGNAL
CCD BUS (-) SHORTED TO OUTPUT SPEED SENSOR SIGNAL
CCD BUS (+) SHORT TO 5 VOLTS
CCD BUS (+) SHORTED TO 5 VOLTS CAV A17
CCD BUS (+) SHORTED TO 5 VOLTS CAV B31
CCD BUS (-) SHORT TO 5 VOLTS
CCD BUS (-) SHORTED TO 5 VOLTS CAV A17
CCD BUS (-) SHORTED TO 5 VOLTS CAV B31
CMTC SHORTED TO 5 VOLTS
INSTRUMENT CLUSTER SHORTED TO 5 VOLTS
REMOTE KEYLESS ENTRY SHORTED TO 5 VOLTS
DRB OR DRB CABLE SHORTED TO 5 VOLTS
POWERTRAIN CONTROL MODULE SHORTED TO 5 VOLTS
TRANSMISSION CONTROL MODULE CCD BUS SHORT TO 5V

COMMUNICATION

* SHORT TO 5 VOLTS — Continued

TEST	ACTION	APPLICABILITY
139	<p>Note: Answer the question whether a module is present or not. Key Off. Disconnect the Powertrain Control Module. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO 5 VOLTS?</p> <p>Yes → Go To 140</p> <p>No → Go To 150</p>	All
140	<p>Note: Answer the question whether a module is present or not. Key Off. Disconnect the Transmission Control Module Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO 5 VOLTS?</p> <p>Yes → Go To 141</p> <p>No → Go To 148</p>	All
141	<p>Note: Answer the question whether a module is present or not. Disconnect the Instrmt Cluster. Check connectors - Clean / repair as necessary. Does the DRB show BUS SHORT TO 5 VOLTS?</p> <p>Yes → Go To 142</p> <p>No → Replace the Instrument Cluster. Perform Verification TEST VER-2A</p>	All
142	<p>Note: Answer the question whether a module is present or not. Disconnect the Compass Mini-Trip Computer Connector. Check connectors - Clean / repair as necessary. Does the DRB show BUS SHORT TO 5 VOLTS?</p> <p>Yes → Go To 143</p> <p>No → Replace the Compass Mini-Trip Computer Module. Perform Verification TEST VER-2A</p>	All
143	<p>Note: Answer the question whether a module is present or not. Disconnect the RKE Module Connector. Check connectors - Clean / repair as necessary. Does the DRB show BUS SHORT TO 5 VOLTS?</p> <p>Yes → Go To 144</p> <p>No → Replace the RKE Module. Perform Verification TEST VER-2A</p>	All
144	<p>Note: Answer the question whether a module is present or not. Warning: Turn Ignition Off. Wait 2 mins. before proceeding. Disconnect the Smart Key Immobilizer Module. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO 5 VOLTS?</p> <p>Yes → Go To 145</p> <p>No → Replace the Smart Key Immobilizer Module. Perform Body Verification TEST VER-2A</p>	All

*** SHORT TO 5 VOLTS — Continued**

TEST	ACTION	APPLICABILITY
145	<p>Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected.</p> <p>Warning: If the Airbag Control Module is dropped at any time, it must be replaced.</p> <p>Disconnect the Airbag Control Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Turn Ignition On (Engine Off).</p> <p>Does the DRB show BUS SHORT TO 5 VOLTS?</p> <p>Yes → Go To 146</p> <p>No → Replace the Airbag Control Module in accordance with Service instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</p>	All
146	<p>Key Off. Disconnect the following Controller Modules if not already disconnected: TCM, PCM, RKE, CMTC, and Instrument Cluster.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Disconnect the Airbag Control Module.</p> <p>Turn Ignition On (Engine Off).</p> <p>Disconnect the DRB from the Data Link Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using a voltmeter, measure the CCD Bus (+) Ckt (Cavity 3).</p> <p>Is the voltage above 4.0 volts?</p> <p>Yes → Repair the CCD Bus (+) Circuit for a short to 5 volts. Perform Verification TEST VER-2A</p> <p>No → Go To 147</p>	All
147	<p>Disconnect the DRB from the Data Link Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using a voltmeter, measure the CCD Bus (-) Ckt (Cavity 11).</p> <p>Is the voltage above 4.0 volts?</p> <p>Yes → Repair the CCD Bus (-) Circuit for a short to 5 volts. Perform Verification TEST VER-2A</p> <p>No → Replace DRB or DRB Cable as necessary. Perform Verification TEST VER-2A</p>	All
148	<p>Turn Ignition Off.</p> <p>Using an ohmmeter measure between Output Speed Sensor Signal (Cavity 4) to CCD Bus (+) (Cavity 7).</p> <p>Is the resistance below 100.0 ohms?</p> <p>Yes → Repair the shorted CCD Bus (+) Circuit. Perform Verification TEST VER-2A</p> <p>No → Go To 149</p>	All

COMMUNICATION

* SHORT TO 5 VOLTS — Continued

TEST	ACTION	APPLICABILITY
149	<p>Turn Ignition Off. Using an ohmmeter measure between Output Speed Sensor Signal (Cavity 4) to CCD Bus (-) (Cavity 6). Is the resistance below 100.0 ohms?</p> <p>Yes → Repair the shorted CCD Bus (-) Circuit. Perform Verification TEST VER-2A</p> <p>No → Replace the Transmission Control Module. Perform Verification TEST VER-2A</p>	All
150	<p>Turn Ignition Off. Using an ohmmeter measure resistance between CCD Bus (+) Ckt (Cav C30) & the 5 Volt Supply (Cav A17). Is the resistance below 800 ohms?</p> <p>Yes → Repair the CCD Bus (+) Ckt short to the 5 Volt Supply. Perform Verification TEST VER-2A</p> <p>No → Go To 151</p>	All
151	<p>Turn Ignition Off. Using an ohmmeter measure resistance between CCD Bus (-) Ckt (Cav C28) & the 5 Volt Supply (Cav A17). Is the resistance below 800 ohms?</p> <p>Yes → Repair the CCD Bus (-) Ckt short to the 5 Volt Supply. Perform Verification TEST VER-2A</p> <p>No → Go To 152</p>	All
152	<p>Turn Ignition Off. Using an ohmmeter measure resistance between CCD Bus (+) Ckt (Cav C30) & the 5 Volt Supply (Cav B31). Is the resistance below 800 ohms?</p> <p>Yes → Repair the CCD Bus (+) Ckt short to the 5 Volt Supply. Perform Verification TEST VER-2A</p> <p>No → Go To 153</p>	All
153	<p>Turn Ignition Off. Using an ohmmeter measure resistance between CCD Bus (-) Ckt (Cav C28) & the 5 Volt Supply (Cav B31). Is the resistance below 800 ohms?</p> <p>Yes → Repair the CCD Bus (-) Ckt short to the 5 Volt Supply. Perform Verification TEST VER-2A</p> <p>No → Replace the Powertrain Control Module (PCM). Perform Verification TEST VER-2A</p>	All

Symptom:*** SHORT TO BATTERY****POSSIBLE CAUSES**

AIRBAG CONTROL MODULE BUS SHORT TO BATTERY
POWERTRAIN CONTROL MODULE GROUND CIRCUIT 1 OPEN
POWERTRAIN CONTROL MODULE GROUND CIRCUIT 2 OPEN
CMTC GROUND CIRCUIT OPEN
IC GROUND CIRCUIT OPEN
DLC CCD BUS (+) SHORT TO VOLTAGE
DLC CCD BUS (-) SHORT TO VOLTAGE
RKE GROUND CIRCUIT 1 OPEN
RKE GROUND CIRCUIT 2 OPEN
TRANSMISSION CONTROL MODULE BUS SHORT TO BATTERY
DRB OR DRB CABLE SHORT TO VOLTAGE
INSTRUMENT CLUSTER INTERNAL SHORT TO GROUND
POWERTRAIN CONTROL MODULE INTERNAL SHORT TO GROUND
REMOTE KEYLESS ENTRY BUS SHORT TO BATTERY

COMMUNICATION

* SHORT TO BATTERY — Continued

TEST	ACTION	APPLICABILITY
154	<p>Key Off. Disconnect the Powertrain Control Module (PCM). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO BATTERY?</p> <p>Yes → Go To 155 No → Go To 166</p>	All
155	<p>Key Off. Disconnect the Transmission Control Module (if equipped). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO BATTERY?</p> <p>Yes → Go To 156 No → Replace the Transmission Control Module. Perform Verification TEST VER-2A</p>	All
156	<p>Key Off, disconnect the CMTC 12-way Connector. Check connectors - Clean / repair as necessary. Ignition On (Engine Off). Does the DRB show BUS SHORT TO BATTERY?</p> <p>Yes → Go To 157 No → Go To 165</p>	All
157	<p>Disconnect the Remote Keyless Entry Module (if equipped). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO BATTERY?</p> <p>Yes → Go To 158 No → Go To 163</p>	All
158	<p>Disconnect the Instrument Cluster. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO BATTERY?</p> <p>Yes → Go To 159 No → Go To 162</p>	All
159	<p>Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding. Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected. Warning: If the Airbag Control Module is dropped at any time, it must be replaced. Disconnect the Airbag Control Module Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO BATTERY?</p> <p>Yes → Go To 160 No → Replace the Airbag Control Module in accordance with Service instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</p>	All

* **SHORT TO BATTERY — Continued**

TEST	ACTION	APPLICABILITY
160	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Disconnect the Airbag Control Module Connector if the ACM is not already disconnected.</p> <p>Disconnect the Powertrain Control Module.</p> <p>Disconnect the Transmission Control Module if equipped.</p> <p>Disconnect the Compass Mini-Trip Computer if equipped.</p> <p>Disconnect the Remote Keyless Entry Module if equipped.</p> <p>Disconnect the Instrument Cluster.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Disconnect the DRB from the Data Link Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using a voltmeter measure the CCD Bus (+) Ckt.</p> <p>Is the voltage above 0.2 volts?</p> <p>Yes → Repair the CCD (+) Circuit short to voltage. Perform Verification TEST VER-2A</p> <p>No → Go To 161</p>	All
161	<p>Warning: Turn Ignition Off, Disconnect the Battery and wait 2 minutes before proceeding.</p> <p>Disconnect the Airbag Control Module Connector if the ACM is not already disconnected.</p> <p>Disconnect the Powertrain Control Module.</p> <p>Disconnect the Transmission Control Module if equipped.</p> <p>Disconnect the Compass Mini-Trip Computer if equipped.</p> <p>Disconnect the Remote Keyless Entry Module if equipped.</p> <p>Disconnect the Instrument Cluster.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Disconnect the DRB from the Data Link Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using a voltmeter measure the CCD Bus (-) Ckt.</p> <p>Is the voltage above 0.2 volts?</p> <p>Yes → Repair the CCD (-) Circuit short to voltage. Perform Verification TEST VER-2A</p> <p>No → Replace the DRB or DRB Cable as necessary. Perform Verification TEST VER-2A</p>	All
162	<p>Turn Ignition Off.</p> <p>Using an ohmmeter measure the Ground Circuit (Cav 6) to ground.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Instrument Cluster. Perform Verification TEST VER-2A</p> <p>No → Repair the open Ground Circuit. Perform Verification TEST VER-2A</p>	All
163	<p>Turn Ignition Off.</p> <p>Using an ohmmeter measure the Ground Ckt (Cavity 3) to ground.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 164</p> <p>No → Repair the open Ground Circuit. Perform Verification TEST VER-2A</p>	All

COMMUNICATION

* SHORT TO BATTERY — Continued

TEST	ACTION	APPLICABILITY
164	<p>Turn Ignition Off. Using an ohmmeter measure the Ground Ckt (Cavity 9) to ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Remote Keyless Entry Module. Perform Verification TEST VER-2A</p> <p>No → Repair the open Ground Circuit. Perform Verification TEST VER-2A</p>	All
165	<p>Turn Ignition Off. Using an ohmmeter measure the Ground Circuit (Cav 12) to ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Test Complete.</p> <p>No → Repair the open Ground Circuit. Perform Verification TEST VER-2A</p>	All
166	<p>Turn Ignition Off. Using an ohmmeter measure the Ground Ckt (Cav A31) to ground. Is the resistance below 10.0 ohms?</p> <p>Yes → Go To 167</p> <p>No → Repair the open Ground Circuit. Perform Verification TEST VER-2A</p>	All
167	<p>Turn Ignition Off. Using an ohmmeter measure the Ground Ckt (Cav A32) to ground. Is the resistance below 10.0 ohms?</p> <p>Yes → Replace the Powertrain Control Module. Perform Verification TEST VER-2A</p> <p>No → Repair the open Ground Circuit. Perform Verification TEST VER-2A</p>	All

Symptom:*** SHORT TO GROUND****POSSIBLE CAUSES**

AIRBAG CONTROL MODULE BUS SHORTED TO GROUND
DLC GROUND WIRE OPEN
SKIM SHORT TO GROUND
POWERTRAIN CONTROL MODULE BUS SHORTED TO GROUND
CCD BUS (+) SHORTED TO GROUND
CCD BUS (-) SHORTED TO GROUND
CMTC BUS SHORTED TO GROUND
TRANSMISSION CONTROL MODULE BUS SHORTED TO GROUND
DRB OR DRB CABLE SHORTED TO GROUND
REMOTE KEYLESS ENTRY BUS SHORTED TO GROUND
INSTRUMENT CLUSTER BUS SHORTED TO GROUND

COMMUNICATION

* SHORT TO GROUND — Continued

TEST	ACTION	APPLICABILITY
168	<p>Note: Answer the question whether a module is present or not. Ensure the Ignition is in the Run position. Connect a backjumper from Ground Terminal #4 to Ground Terminal #5 at DLC. Does the DRB show BUS SHORT TO GROUND?</p> <p>Yes → Go To 169</p> <p>No → Repair the open Ground at Terminal #5. Perform Verification TEST VER-2A</p>	All
169	<p>Note: Answer the question whether a module is present or not. Key Off. Disconnect the Powertrain Control Module (PCM). Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO GROUND?</p> <p>Yes → Go To 170</p> <p>No → Replace the Powertrain Control Module. Perform Verification TEST VER-2A</p>	All
170	<p>Note: Answer the question whether a module is present or not. Key Off. Disconnect the Transmission Control Module Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show SHORT TO GROUND?</p> <p>Yes → Go To 171</p> <p>No → Replace the Transmission Control Module. Perform Verification TEST VER-2A</p>	All
171	<p>Note: Answer the question whether a module is present or not. Disconnect the Compass/Mini-Trip Computer (CMTC). Check connectors - Clean / repair as necessary. Does the DRB show BUS SHORT TO GROUND?</p> <p>Yes → Go To 172</p> <p>No → Replace the Compass/Mini-Trip Computer Module. Perform Verification TEST VER-2A</p>	All
172	<p>Note: Answer the question whether a module is present or not. Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. Does the DRB show BUS SHORT TO GROUND?</p> <p>Yes → Go To 173</p> <p>No → Replace the Remote Keyless Entry Module. Perform Verification TEST VER-2A</p>	All

* SHORT TO GROUND — Continued

TEST	ACTION	APPLICABILITY
173	<p>Note: Answer the question whether a module is present or not. Warning: Turn Ignition off, Disconnect the Battery and wait 2 minutes before proceeding. Note: When reconnecting the DAB Module the Ignition must be Off and the Battery must be connected. Warning: If the Airbag Control Module is dropped at any time, it must be replaced. Disconnect the Airbag Control Module Connector. Check connectors - Clean / repair as necessary. Turn Ignition On. Does the DRB show BUS SHORT TO GROUND?</p> <p>Yes → Go To 174</p> <p>No → Replace the Airbag Control Module in accordance with Service instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding. Perform Body Verification TEST VER-2A.</p>	All
174	<p>Note: Answer the question whether a module is present or not. Warning: Turn Ignition Off. Wait 2 mins. before proceeding. Disconnect the Smart Key Immobilizer Module. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Does the DRB show BUS SHORT TO GROUND?</p> <p>Yes → Go To 175</p> <p>No → Replace the Sentry Key Immobilizer Module. Perform Body Verification TEST VER-2A</p>	All
175	<p>All Modules must be disconnected at this time. Disconnect the DRB from the Data Link Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter measure the CCD Bus (+) Ckt (cav 3) to ground. Is the resistance below 500.0 ohms?</p> <p>Yes → Repair CCD Bus (+) Ckt short to ground. Perform Verification TEST VER-2A</p> <p>No → Go To 176</p>	All
176	<p>All Modules must be disconnected at this time. Disconnect the DRB from the Data Link Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter measure the CCD Bus (-) Ckt (cav 11) to ground. Is the resistance below 500.0 ohms?</p> <p>Yes → Repair CCD Bus (-) Ckt short to ground. Perform Verification TEST VER-2A</p> <p>No → Go To 177</p>	All
177	<p>Try the DRB and DRB Cable on another vehicle. Does the DRB operate properly?</p> <p>Yes → Replace the Instrument Cluster. Perform Verification TEST VER-2A</p> <p>No → Replace the DRB or DRB Cable as necessary. Perform Verification TEST VER-2A</p>	All

INSTRUMENT CLUSTER

Symptom:

*** ALL GAUGES INOPERATIVE**

POSSIBLE CAUSES
FUSED B (+) CIRCUIT FROM I0D FUSE OPEN
NO RESPONSE/ CCD BUS
DEFECTIVE INSTRUMENT CLUSTER

INSTRUMENT CLUSTER

* ALL GAUGES INOPERATIVE — Continued

TEST	ACTION	APPLICABILITY
178	<p>With the DRB, select ELECTRO/MECH CLUSTER. Does the DRB display BUS OPERATIONAL?</p> <p>Yes → Go To 179</p> <p>No → Choose appropriate Communication symptom to repair Bus message failure. Perform Body Verification TEST VER-2A</p>	All
179	<p>With the DRB, select ELECTRO/MECH CLUSTER. Does the DRB, display NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM INSTRUMENT CLUSTER in the COMMUNICATION category.</p> <p>No → Go To 180</p>	All
180	<p>With the DRB, select SYSTEM TEST. Does the DRB display PCM INACTIVE ON THE BUS?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p> <p>No → Go To 181</p>	All
181	<p>Key Off, remove Instrument Cluster. Check Connectors - Clean / repair as necessary. Key On, using a voltmeter measure Fused B (+) Circuit (Cav 9 Left Conn) . Is the voltage above 10.0 volts ?</p> <p>Yes → Go To 182</p> <p>No → Repair open Fused B (+) Circuit from IOD Fuse. Perform Body Verification TEST VER-2A</p>	All
182	<p>If there are no potential causes remaining, the Instrument Cluster is assumed to be defective . View repair options .</p> <p>Repair</p> <p>Replace Instrument Cluster. Perform Body Verification TEST VER-2A</p>	All

INSTRUMENT CLUSTER

Symptom:

*** ANY CCD CLUSTER WARNING LAMP INOPERATIVE**

POSSIBLE CAUSES
NO RESPONSE/ CCD BUS
CCD INOPERATIVE LAMP/BULB DEFECTIVE
CCD LAMP CLUSTER INPUT DEFECTIVE
DEFECTIVE CLUSTER
CCD LP CLUSTER TEST COMPLETE

*** ANY CCD CLUSTER WARNING LAMP INOPERATIVE — Continued**

TEST	ACTION	APPLICABILITY
183	<p>With the DRB, select ELECTRO/MECH CLUSTER. Does the DRB display BUS OPERATIONAL?</p> <p>Yes → Go To 184</p> <p>No → Choose appropriate Communication symptom to repair Bus message failure.</p>	All
184	<p>With the DRB, select ELECTRO/MECH CLUSTER. Does the DRB, display NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM INSTRUMENT CLUSTER in the COMMUNICATION category.</p> <p>No → Go To 185</p>	All
185	<p>With the DRB, select SYSTEM TEST. Does the DRB display PCM INACTIVE ON THE BUS?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p> <p>No → Go To 186</p>	All
186	<p>Using the DRB, perform the Instrument Cluster self test. Check Connectors - Clean / repair as necessary. Observe the Lamp in question during the self-tests. Did the Lamp light ?</p> <p>Yes → Go To 187</p> <p>No → Go To 188</p>	All
187	<p>Is the defective Lamp controlled by an input to the Cluster ? see schematic</p> <p>Yes → Refer to Symptoms and Failure Modes for Switch test procedure. Perform Body Verification TEST VER-2A</p> <p>No → Test complete. Perform Body Verification TEST VER-2A</p>	All
188	<p>Gain access to the back of the Cluster. Remove and inspect the Inoperative Bulb. Check Connectors - Clean / repair as necessary. Is the Bulb burned out ?</p> <p>Yes → Replace the Bulb. Perform Body Verification TEST VER-2A</p> <p>No → Go To 189</p>	All
189	<p>If there are no potential causes remaining, the Cluster is assumed to be defective . View repair options .</p> <p>Repair</p> <p>Replace the Cluster. Perform Body Verification TEST VER-2A</p>	All

INSTRUMENT CLUSTER

Symptom:

*** ANY HARD WIRED CLUSTER WARNING LAMP**

POSSIBLE CAUSES
HARD WIRED LAMP CIRCUIT OPEN
INOPERATIVE LAMP/BULB DEFECTIVE
DEFECTIVE INSTRUMENT CLUSTER

INSTRUMENT CLUSTER

* ANY HARD WIRED CLUSTER WARNING LAMP — Continued

TEST	ACTION	APPLICABILITY
190	<p>Remove the Instrument Cluster. Check Connectors - Clean / repair as necessary. Remove and inspect the inoperative Bulb. Is the Bulb open ?</p> <p>Yes → Replace the Bulb. Perform Body Verification TEST VER-2A</p> <p>No → Go To 191</p>	All
191	<p>The Lamps are supplied with either power or ground by the Cluster, what the Cluster doesn't supply must come from the circuit that feeds the Bulb. See schematic. Using a voltmeter or ohmmeter, check for power or ground at the appropriate Cluster Connector. The Ignition or component may have to be turned on. Is the required voltage or ground present at the proper Cluster Connector cavity ?</p> <p>Yes → Replace the Instrument Cluster. Perform Body Verification TEST VER-2A</p> <p>No → Refer to Symptoms and Failure Modes in appropriate section to repair the open Circuit. Perform Body Verification TEST VER-2A</p>	All

INSTRUMENT CLUSTER

Symptom:

*** ONE GAUGE NOT OPERATING PROPERLY**

POSSIBLE CAUSES
DTC'S ARE PRESENT
INSTRUMENT CLUSTER DEFECTIVE
POWERTRAIN FAILURE

*** ONE GAUGE NOT OPERATING PROPERLY — Continued**

TEST	ACTION	APPLICABILITY
192	<p>Using the DRB perform the Instrument Cluster self test (under ACTUATE TESTS). Observe the Gauge in question and compare the reading with the following Gauge Calibration points.</p> <p>Speedometer Cal Points: #1 (0), #2 (20), #3 (55), #4 (80) and #5 (100). Tachometer Cal Points: #1 (0), #2 (2000), #3 (5000) and #4 (6000). Fuel Gauge Cal Points: #1 (EMPTY), #2 (1/2) and #3 (FULL). Voltage Gauge Calibration Points: #1 (9), #2 (14) and #3 (19). Oil Gauge Calibration Points: #1 (0), #2 (40) and #3 (80). Temperature Gauge Cal Points: #1 (100), #2 (210) and #3 (260). Did the Gauge reach the proper Calibration points?</p> <p>Yes → Go To 193</p> <p>No → Replace the Instrument Cluster. Perform Body Verification TEST VER-2A</p>	All
193	<p>Using the DRB, select ENGINE, READ DTC'S. Are there any DTC'S that relate to the Speedo, Coolant Temp, Volts or Fuel Level ?</p> <p>Yes → Refer to Symptoms and Failure Modes in appropriate Powertrain diagnostic section. Perform Body Verification TEST VER-2A</p> <p>No → Refer to the appropriate section of the Service Manual. Perform Body Verification TEST VER-2A</p>	All

OVERHEAD CONSOLE

Symptom List:

- * COMPASS MINI-TRIP COMPUTER AVERAGE MPH OR FUEL ECONOMY WRONG
- * COMPASS MINI-TRIP COMPUTER TRIP ODOMETER INOPERATIVE OR WRONG

Test Note: All symptoms listed above are diagnosed using the same tests. The title for the tests will be * COMPASS MINI-TRIP COMPUTER AVERAGE MPH OR FUEL ECONOMY WRONG.

POSSIBLE CAUSES

ARE RELATED DTC'S PRESENT

*** COMPASS MINI-TRIP COMPUTER AVERAGE MPH OR FUEL ECONOMY WRONG — Continued**

TEST	ACTION	APPLICABILITY
194	Turn Ignition On (Engine Off). With the DRB, select Engine. Does the DRB show NO RESPONSE? Yes → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category. No → Go To 195	All
195	Turn Ignition On (Engine Off). With the DRB, select Engine. Under Engine, READ DTC'S. Are there any related DTC's? Yes → Return to the Symptom list for problems related to Powertrain and diagnose problem. Perform Body Verification TEST VER-2A. No → Test Complete.	All

OVERHEAD CONSOLE

Symptom:

*** COMPASS MINI-TRIP COMPUTER DISTANCE TO EMPTY INOPERATIVE OR WRONG**

POSSIBLE CAUSES

CMTC DISTANCE TO EMPTY INOPERATIVE OR WRONG

*** COMPASS MINI-TRIP COMPUTER DISTANCE TO EMPTY INOPERATIVE OR WRONG — Continued**

Repair Instructions:

CMTC DISTANCE TO EMPTY INOPERATIVE OR WRONG

Refer to symptom list for ONE GAUGE NOT OPERATING PROPERLY under Instrument Cluster category.

Perform Body Verification TEST VER-2A.

OVERHEAD CONSOLE

Symptom:

*** COMPASS MINI-TRIP COMPUTER ELAPSED TIME INOPERATIVE OR WRONG**

POSSIBLE CAUSES
DEFECTIVE COMPASS MINI-TRIP COMPUTER

*** COMPASS MINI-TRIP COMPUTER ELAPSED TIME INOPERATIVE OR
WRONG — Continued**

Repair Instructions:

DEFECTIVE COMPASS MINI-TRIP COMPUTER

Replace the Compass Mini-Trip Computer Module.

Perform Body Verification TEST VER-2A.

OVERHEAD CONSOLE

Symptom:

*** COMPASS MINI-TRIP COMPUTER SEGMENTS FAILS TO LIGHT**

POSSIBLE CAUSES
DEFECTIVE COMPASS MINI-TRIP COMPUTER -SEGMENTS FAIL TO LIGHT

*** COMPASS MINI-TRIP COMPUTER SEGMENTS FAILS TO LIGHT — Continued**

Repair Instructions:

DEFECTIVE COMPASS MINI-TRIP COMPUTER -SEGMENTS FAIL TO LIGHT

Replace the Compass Mini-Trip Computer Module.

Perform Body Verification TEST VER-2A.

OVERHEAD CONSOLE

Symptom:

*** COMPASS MINI-TRIP COMPUTER SHOWS CCD**

POSSIBLE CAUSES
CMTC INTERNAL BUS SHORT TO GROUND
CCD BUS (-) CIRCUIT OPEN
CMTC CCD BUS (+) CIRCUIT OPEN
FUSED IGNITION SWITCH OUTPUT CKT OPEN

* COMPASS MINI-TRIP COMPUTER SHOWS CCD — Continued

TEST	ACTION	APPLICABILITY
196	<p>Key Off, disconnect the CMTC 12-way Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Connect a jumper wire from CCD Bus (-) to ground. With the DRB perform the Bus Test. Does the DRB show BUS SHORTED TO GROUND?</p> <p>Yes → Go To 197</p> <p>No → Repair the open CCD BUS (-) Ckt from Compass/Mini-trip to Data Link Connector. Perform Verification TEST VER-2A</p>	All
197	<p>Key Off, disconnect the CMTC 12-way Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Using a voltmeter measure the Fused Ign Switch Output Ckt (Cav 6). Is the voltage above 10.0 volts?</p> <p>Yes → Go To 198</p> <p>No → Repair the open Fused Ignition Switch Output Circuit. Perform Verification TEST VER-2A</p>	All
198	<p>Key Off, disconnect the CMTC 12-way Connector. Check connectors - Clean / repair as necessary. Turn Ignition On (Engine Off). Connect a jumper wire from CCD Bus (+) to ground. Does the DRB show BUS SHORTED TO GROUND?</p> <p>Yes → Replace the Compass/Mini-trip Module. Perform Verification TEST VER-2A</p> <p>No → Repair the open CCD BUS (+) Ckt from Compass/Mini-trip to Data Link Connector. Perform Verification TEST VER-2A</p>	All

OVERHEAD CONSOLE

Symptom:

*** COMPASS/MINI-TRIP COMPUTER DISPLAYING OC**

POSSIBLE CAUSES
OPEN SENSOR GROUND CIRCUIT
AMBIENT TEMPERATURE SENSOR DEFECTIVE
OPEN AMBIENT TEMPERATURE SENSOR SIGNAL CKT
DEFECTIVE COMPASS/MINI-TRIP MODULE- SENSOR GROUND CKT.

OVERHEAD CONSOLE

* COMPASS/MINI-TRIP COMPUTER DISPLAYING OC — Continued

TEST	ACTION	APPLICABILITY
199	<p>Disconnect the Ambient Temperature Sensor Connector. Check connector - Clean/repair as necessary. Connect a jumper between the Ambient Temp Sensor Signal and Sensor Gnd Ckts. Turn Ignition On (Engine Off). Observe the Compass/Mini-Trip Display. Does the Display show SC?</p> <p>Yes → Replace the Ambient Temperature Sensor. Perform Body Verification TEST VER-2A.</p> <p>No → Go To 200</p>	All
200	<p>Turn Ignition Off. Disconnect the jumper wire. Disconnect the Compass/Mini-Trip Computer 12-Way Connector. Check connectors - Clean/repair as necessary. Jumper both the Ambient Temp Sensor Signal and Sensor Gnd Ckts to ground. Using an ohmmeter, measure the Ambient Temperature Sensor Signal Ckt. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 201</p> <p>No → Repair the open Ambient Temperature Sensor Signal Circuit. Perform Body Verification TEST VER-2A.</p>	All
201	<p>Turn Ignition Off. Disconnect the Compass/Mini-Trip Computer 12-Way Connector. Check connectors - Clean/repair as necessary. Jumper both the Ambient Temp Sensor Signal and Sensor Gnd Ckts to ground. NOTE: The jumper is still connected. Using an ohmmeter, measure the Sensor Ground Ckt. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 202</p> <p>No → Repair the open Sensor Ground Circuit. Perform Body Verification TEST VER-2A.</p>	All
202	<p>If there are no potential causes remaining, the Compass/Mini-Trip Module is assumed to be defective. View repair options.</p> <p>Repair</p> <p>Replace the Compass/ Mini-Trip Computer Module. Perform Body Verification TEST VER-2A.</p>	All

OVERHEAD CONSOLE

Symptom:

*** COMPASS/MINI-TRIP COMPUTER DISPLAYING SC**

POSSIBLE CAUSES
DEFECTIVE AMBIENT TEMPERATURE SENSOR
AMBIENT TEMPERATURE SENSOR SIGNAL CIRCUIT-SHORT/GROUND
AMBIENT TEMPERATURE SENSOR SIGNAL CIRCUIT- SHORT/SENSOR GROUND
COMPASS/MINI-TRIP MODULE-DEFAULT

* COMPASS/MINI-TRIP COMPUTER DISPLAYING SC — Continued

TEST	ACTION	APPLICABILITY
203	<p>Disconnect the Ambient Temperature Sensor Connector. Check connectors - Clean/repair as necessary. Observe the Compass/Mini-Trip Display. Does the Display Show OC?</p> <p>Yes → Replace the Ambient Temperature Sensor. Perform Body Verification TEST VER-2A.</p> <p>No → Go To 204</p>	All
204	<p>Turn Ignition Off. Disconnect the Compass/Mini-Trip Computer 12-Way Connector. Check connectors - Clean/repair as necessary. Using an ohmmeter, measure the Ambient Temperature Sensor Signal Circuit to ground. Is the resistance below 25.0 ohms?</p> <p>Yes → Repair the Ambient Temperature Sensor Signal Circuit for a short to ground. Perform Body Verification TEST VER-2A.</p> <p>No → Go To 205</p>	All
205	<p>Turn Ignition Off. Disconnect the Compass/Mini-Trip Computer 12-Way Connector. Check connectors - Clean/repair as necessary. Using an ohmmeter, measure between the Ambient Temperature Sensor Signal and the Sensor Ground Circuits. Is the resistance below 1000 ohms?</p> <p>Yes → Repair the Ambient Temperature Sensor Signal Ckt for a short to the Sensor Ground Ckt. Perform Body Verification TEST VER-2A.</p> <p>No → Go To 206</p>	All
206	<p>If there are no potential causes remaining, the Compass Mini-Trip Module is assumed to be defective. View repair options.</p> <p>Repair</p> <p>Replace the Compass/Mini-Trip Computer Module. Perform Body Verification TEST VER-2A.</p>	All

OVERHEAD CONSOLE

Symptom:

*** COMPASS/MINI-TRIP COMPUTER SWITCH INOPERATIVE**

POSSIBLE CAUSES
DEFECTIVE BUTTON ASSEMBLY MODULE/STEP BUTTON
DEFECTIVE BUTTON ASSEMBLY MODULE/DRB SELECT
DEFECTIVE BUTTON ASSEMBLY MODULE/US-M BUTTON

*** COMPASS/MINI-TRIP COMPUTER SWITCH INOPERATIVE — Continued**

TEST	ACTION	APPLICABILITY
207	<p>Turn Ignition Off. Using the DRB, select COMPASS/MINI-TRIP, INPUT/OUTPUT DISPLAY. Does the DRB show either button PRESSED?</p> <p>Yes → Replace the Button Assembly Module. Perform Body Verification TEST VER-2A.</p> <p>No → Go To 208</p>	All
208	<p>Turn Ignition Off. Using the DRB, select COMPASS/MINI-TRIP, INPUT/OUTPUT DISPLAY. While observing the DRB display, press the STEP Button. Does the DRB show PRESSED?</p> <p>Yes → Go To 209</p> <p>No → Replace the Button Assembly Module. Perform Body Verification TEST VER-2A.</p>	All
209	<p>Turn Ignition Off. Using the DRB, select COMPASS/MINI-TRIP, INPUT/OUTPUT DISPLAY. While observing the DRB display, press the US/M Button. Does the DRB show PRESSED?</p> <p>Yes → Test Complete.</p> <p>No → Replace Button Assembly Module. Perform Body Verification TEST VER-2A.</p>	All

OVERHEAD CONSOLE

Symptom:

*** INCORRECT AMBIENT TEMPERATURE READING**

POSSIBLE CAUSES

OPEN SENSOR GROUND/DEFECTIVE CMTM
SENSOR GROUND CIRCUIT PARTIAL SHORT/ GROUND
DEFECTIVE AMBIENT TEMP SENSOR/ROAD TEST
AMBIENT TEMP SENSOR SIGNAL CIRCUIT-PARTIAL SHORT/GROUND
DEFECTIVE COMPASS/MINI-TRIP MODULE
DEFECTIVE COMPASS/MINI-TRIP MODULE/SENSOR GROUND CKT
AMBIENT TEMPERATURE SENSOR SIGNAL CKT-SHORT/SENSOR GROUND

* INCORRECT AMBIENT TEMPERATURE READING — Continued

TEST	ACTION	APPLICABILITY
210	<p>Note: After any repair for a temperature problem, the vehicle must be driven over 3 miles, above 25 mph steady, in order to update CMTC display. Disconnect and remove the Ambient Temperature Sensor. Check connectors - Clean/repair as necessary. Note: The Sensor must have had time to cool to ambient temperature for next step. Using an ohmmeter, measure the resistance of the Ambient Temperature Sensor and compare reading with the chart. C- 0 F- 32 MIN- 29.3 MAX- 36 C- 10 F- 50 MIN- 18 MAX- 22 C- 20 F- 68 MIN- 11.4 MAX- 13.6 C- 25 F- 77 MIN- 9.1 MAX- 10.8 C- 30 F- 86 MIN- 7.4 MAX- 8.7 C- 40 F- 104 MIN- 4.9 MAX- 5.7 C- 50 F- 122 MIN- 3.3 MAX- 3.8 Does the reading compare with the chart?</p> <p>Yes → Go To 211</p> <p>No → Replace the Ambient Temperature Sensor. Perform Body Verification TEST VER-2A.</p>	All
211	<p>Disconnect and remove the Ambient Temperature Sensor. Check connectors - Clean/repair as necessary. Key Off, close all doors and ensure all lights are off. Using an ohmmeter, measure the Sensor Ground Circuit to ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 212</p> <p>No → Go To 215</p>	All
212	<p>Turn Ignition Off. Disconnect the Compass/Mini-Trip Module 12-Way Connector. Check connectors - Clean/repair as necessary. Using an ohmmeter, measure the resistance of the Ambient Temperature Sensor by connecting one lead to the Ambient Temp Sensor Signal Circuit and the other lead to the Sensor Ground Circuit (Cavities 4 and 10). Compare the reading with the chart. C- 0 F- 32 MIN- 29.3 MAX- 36 C- 10 F- 50 MIN- 18 MAX- 22 C- 20 F- 68 MIN- 11.4 MAX- 13.6 C- 25 F- 77 MIN- 9.1 MAX- 10.8 C- 30 F- 86 MIN- 7.4 MAX- 8.7 C- 40 F- 104 MIN- 4.9 MAX- 5.7 C- 50 F- 122 MIN- 3.3 MAX- 3.8 Does the reading compare with the chart?</p> <p>Yes → Replace the Compass/Mini-Trip Computer Module. Perform Body Verification TEST VER-2A.</p> <p>No → Go To 213</p>	All

OVERHEAD CONSOLE

* INCORRECT AMBIENT TEMPERATURE READING — Continued

TEST	ACTION	APPLICABILITY
213	<p>Turn Ignition Off. Disconnect the Ambient Temperature Sensor. Check connectors - Clean/repair as necessary. Disconnect the Compass/Mini-Trip Module 12-Way Connector. Check connectors - Clean/repair as necessary. Using an ohmmeter, measure the Sensor Ground Ckt. to ground. Note: The CMTC 12-Way Connector is still disconnected. Is the resistance below 20K (20,000) ohms?</p> <p>Yes → Repair the Sensor Ground Circuit for a partial short to ground. Perform Body Verification TEST VER-2A.</p> <p>No → Go To 214</p>	All
214	<p>Turn the Ignition Off. Disconnect the Ambient Temperature Sensor. Check connectors - Clean/repair as necessary. Disconnect the Compass/Mini-Trip Module 12-Way Connector. Check connectors - Clean/repair as necessary. Using an ohmmeter, measure the Ambient Temperature Sensor Signal Circuit to ground. Note: The CMTC 12-Way Connector is still disconnected. Is the resistance below 50K (50,000) ohms?</p> <p>Yes → Repair the Ambient Temperature Sensor Signal Circuit for a partial short to ground. Perform Body Verification TEST VER-2A.</p> <p>No → Repair the Ambient Temperature Sensor Signal Circuit for a short to the Sensor Ground. Perform Body Verification TEST VER-2A.</p>	All
215	<p>Disconnect and remove the Ambient Temperature Sensor. Check connectors - Clean/repair as necessary. Connect a jumper wire from the Sensor Ground Ckt. to ground. Disconnect the Compass/Mini-Trip 12-Way Connector. Check connectors - Clean/repair as necessary. Turn Ignition Off. Using an ohmmeter, measure the Sensor Ground Circuit (Cav 10) to ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 216</p> <p>No → Repair the open Sensor Ground Circuit. Perform Body Verification TEST VER-2A.</p>	All
216	<p>If there are no potential causes remaining, the Compass/Mini-Trip Module is assumed to be defective. View repair options.</p> <p>Repair</p> <p>Replace the Compass/Mini-Trip Computer Module. Perform Body Verification TEST VER-2A.</p>	All

Symptom:*** ILLUMINATED ENTRY INOPERATIVE****POSSIBLE CAUSES**

DRB DISPLAYS BUS ERROR MESSAGE
LINK TO COMMUNICATION BUS INOPERATIVE
POWER DOOR LOCK SWITCHES INOPERATIVE
RKE TRANSMITTER BATTERIES DEFECTIVE-LOW VOLTAGE
DOOR LOCK MOTOR NO OPERATE W/JMPER LOCK CTRL-GND
COURTESY LAMPS DRIVER CIRCUIT OPEN
DOOR LOCK CONTROL CIRCUIT OPEN
DOOR UNLOCK CONTROL CIRCUIT OPEN
NO COURTESY LAMPS FROM DOOR JAMB & DASH SWITCHES
RKE MODULE DEFECTIVE-DOOR LOCK CTRL FUNCTION
FUSED B(+) CIRCUIT FROM IOD FUSE OPEN
PASSENGER DOOR MODULE DEFECTIVE-LOCK CTRL FUNCTION

POWER DOOR LOCKS/RKE

* ILLUMINATED ENTRY INOPERATIVE — Continued

TEST	ACTION	APPLICABILITY
217	<p>Connect the DRB to the Data Link Connector. Turn the Ignition Switch on. Is the DRB screen blank ?</p> <p>Yes → Refer to the Symptoms List for appropriate Vehicle Communications Symptom.</p> <p>No → Go To 218</p>	All
218	<p>Operate the Power Door Locks from the door switches. Did the door locks operate properly ?</p> <p>Yes → Go To 219</p> <p>No → Refer to the appropriate Service instructions.</p>	All
219	<p>With the DRB, select SYSTEM MONITORS, CCD BUS TEST. Does the DRB display BUS OPERATIONAL ?</p> <p>Yes → Go To 220</p> <p>No → Refer to Symptoms List and select appropriate VEHICLE COMMUNICATION SYMPTOM as indicated on the DRB.</p>	All
220	<p>Note: Ensure the Key is in the full OFF position before performing the following test. Do the Door Locks work properly from the RKE Transmitter?</p> <p>Yes → Go To 221</p> <p>No → Go To 223</p>	All
221	<p>Note: Ensure the Key is in the full OFF position before performing the following test. Do the Courtesy Lamps operate properly from the Door Jamb and Dash Switches?</p> <p>Yes → Go To 222</p> <p>No → Refer to the appropriate service information. Perform BODY VER-2A.</p>	All
222	<p>Note: Ensure the Key is in the full OFF position before performing the following test. Disconnect the Remote Keyless Entry Module Connector. Close all Doors. Check connectors - Clean / repair as necessary. Install a jumper wire from Courtesy Lamps Driver Ckt (Cav 1) to ground. Did the Courtesy Lamps light?</p> <p>Yes → Replace the Remote Keyless Entry Module. Perform BODY VER-2A.</p> <p>No → Repair the open Courtesy Lamps Driver Circuit. Perform BODY VER-2A.</p>	All
223	<p>Remove the Batteries from the Transmitter. Using a voltmeter, measure both Batteries. Is the voltage above 3.0 volts on each Battery?</p> <p>Yes → Go To 224</p> <p>No → Replace the Batteries. Perform BODY VER-2A.</p>	All

*** ILLUMINATED ENTRY INOPERATIVE — Continued**

TEST	ACTION	APPLICABILITY
224	<p>If Batteries were removed and checked good in an earlier test, reinstall the Batteries in the Transmitter.</p> <p>Using the DRB, program the Transmitter (follow instructions on the DRB).</p> <p>Did the Transmitter operate the Door Locks?</p> <p>Yes → Test Complete.</p> <p>No → Go To 225</p>	All
225	<p>Disconnect the Remote Keyless Entry Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using a voltmeter, measure the Fused B(+) Circuit (Cav 2) to ground.</p> <p>Is the voltage above 10.0 volts?</p> <p>Yes → Go To 226</p> <p>No → Repair the open Fused B(+) Ckt from IOD Fuse.</p> <p>Perform BODY VER-2A.</p>	All
226	<p>Disconnect the Remote Keyless Entry Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Connect a jumper wire from Door Unlock Control (Cav 5) to ground.</p> <p>Did the Door Lock Motor operate?</p> <p>Yes → Go To 227</p> <p>No → Go To 229</p>	All
227	<p>Disconnect the Remote Keyless Entry Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>If a jumper was connected in an earlier test, disconnect the jumper wire. Close all doors.</p> <p>Connect a jumper wire from Door Lock Control (Cav 11) to ground.</p> <p>Did the Door Lock Motor operate?</p> <p>Yes → Replace the Remote Keyless Entry Module.</p> <p>Perform BODY VER-2A.</p> <p>No → Go To 228</p>	All
228	<p>Disconnect the Remote Keyless Entry Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>If not already done, connect jumper wires from Door Lock and Door Unlock Control (Cavities 5 and 11) to ground.</p> <p>Disconnect the Passenger Door Module 8-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using an ohmmeter, measure the Door Unlock Control Ckt (Cav 2) to ground.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 231</p> <p>No → Repair the open Door Unlock Control Circuit.</p> <p>Perform BODY VER-2A.</p>	All

POWER DOOR LOCKS/RKE

* ILLUMINATED ENTRY INOPERATIVE — Continued

TEST	ACTION	APPLICABILITY
229	<p>Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. If not already done, connect jumper wires from Door Lock and Door Unlock Control (Cavities 5 and 11) to ground. Disconnect the Passenger Door Module 8-way Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter, measure the Door Unlock Control Ckt (Cav 2) to ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 230</p> <p>No → Repair the open Door Unlock Control Circuit. Perform BODY VER-2A.</p>	All
230	<p>Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. If a jumper was connected in an earlier test, disconnect the jumper wire. Close all doors. Connect a jumper wire from Door Lock Control (Cav 11) to ground. Did the Door Lock Motor operate?</p> <p>Yes → Replace the Remote Keyless Entry Module. Perform BODY VER-2A.</p> <p>No → Go To 231</p>	All
231	<p>Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. If not already done, connect jumper wires from Door Lock and Door Unlock Control (Cavities 5 and 11) to ground. Disconnect the Passenger Door Module 8-way Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter, measure the Door Lock Control Ckt (Cav 1) to ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Passenger Door Module. Perform BODY VER-2A.</p> <p>No → Repair the open Door Lock Control Circuit. Perform BODY VER-2A.</p>	All

Symptom:*** REMOTE KEYLESS ENTRY INOPERATIVE****POSSIBLE CAUSES**

DRB DISPLAYS BUS ERROR MESSAGE
LINK TO COMMUNICATION BUS INOPERATIVE
POWER DOOR LOCK SWITCHES INOPERATIVE
RKE TRANSMITTER BATTERIES DEFECTIVE-LOW VOLTAGE
DOOR LOCK MOTOR NO OPERATE W/JMPER LOCK CTRL-GND
DOOR LOCK CONTROL CIRCUIT OPEN
DOOR UNLOCK CONTROL CIRCUIT OPEN
FUSED B(+) CIRCUIT FROM IOD FUSE OPEN
PASSENGER DOOR MODULE DEFECTIVE-LOCK CTRL FUNCTION

POWER DOOR LOCKS/RKE

* REMOTE KEYLESS ENTRY INOPERATIVE — Continued

TEST	ACTION	APPLICABILITY
232	<p>Connect the DRB to the Data Link Connector. Turn the Ignition Switch on. Is the DRB screen blank ?</p> <p>Yes → Refer to the Symptoms List for appropriate Vehicle Communications Symptom.</p> <p>No → Go To 233</p>	All
233	<p>Operate the Power Door Locks from the door switches. Did the door locks operate properly ?</p> <p>Yes → Go To 234</p> <p>No → Refer to the appropriate Service instructions.</p>	All
234	<p>With the DRB, select SYSTEM MONITORS, CCD BUS TEST. Does the DRB display BUS OPERATIONAL ?</p> <p>Yes → Go To 235</p> <p>No → Refer to Symptoms List and select appropriate VEHICLE COMMUNICATION SYMPTOM as indicated on the DRB.</p>	All
235	<p>Using the DRB, select THEFT ALARM, then MISCELLANEOUS, then PROGRAM RKE. Follow the instructions on the DRB. Note: All Transmitters that are to be used with this vehicle should be programmed at this time. Note: To change the Horn Chirp, hold the Lock Button on the Transmitter down for 5 seconds. Continue holding Lock Button and press Unlock Button. Do the door locks now operate properly with the Transmitter ?</p> <p>Yes → Test Complete.</p> <p>No → Go To 236</p>	All
236	<p>Remove the Batteries from the Transmitter. Using a voltmeter, measure both Batteries. Is the voltage above 3.0 volts on each Battery?</p> <p>Yes → Go To 237</p> <p>No → Replace the Batteries. Perform BODY VER-2A.</p>	All
237	<p>If Batteries were removed and checked good in an earlier test, reinstall the Batteries in the Transmitter. Using the DRB, program the Transmitter (follow instructions on the DRB). Did the Transmitter operate the Door Locks?</p> <p>Yes → Test Complete.</p> <p>No → Go To 238</p>	All
238	<p>Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. Using a voltmeter, measure the Fused B(+) Circuit (Cav 2) to ground. Is the voltage above 10.0 volts?</p> <p>Yes → Go To 239</p> <p>No → Repair the open Fused B(+) Ckt from IOD Fuse. Perform BODY VER-2A.</p>	All

* REMOTE KEYLESS ENTRY INOPERATIVE — Continued

TEST	ACTION	APPLICABILITY
239	<p>Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. Connect a jumper wire from Door Unlock Control (Cav 5) to ground. Did the Door Lock Motor operate?</p> <p>Yes → Go To 240 No → Go To 242</p>	All
240	<p>Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. If a jumper was connected in an earlier test, disconnect the jumper wire. Close all doors. Connect a jumper wire from Door Lock Control (Cav 11) to ground. Did the Door Lock Motor operate?</p> <p>Yes → Replace the Remote Keyless Entry Module. Perform BODY VER-2A. No → Go To 241</p>	All
241	<p>Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. If not already done, connect jumper wires from Door Lock and Door Unlock Control (Cavities 5 and 11) to ground. Disconnect the Passenger Door Module 8-way Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter, measure the Door Unlock Control Ckt (Cav 2) to ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 244 No → Repair the open Door Unlock Control Circuit. Perform BODY VER-2A.</p>	All
242	<p>Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. If not already done, connect jumper wires from Door Lock and Door Unlock Control (Cavities 5 and 11) to ground. Disconnect the Passenger Door Module 8-way Connector. Check connectors - Clean / repair as necessary. Using an ohmmeter, measure the Door Unlock Control Ckt (Cav 2) to ground. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 243 No → Repair the open Door Unlock Control Circuit. Perform BODY VER-2A.</p>	All
243	<p>Disconnect the Remote Keyless Entry Module. Check connectors - Clean / repair as necessary. If a jumper was connected in an earlier test, disconnect the jumper wire. Close all doors. Connect a jumper wire from Door Lock Control (Cav 11) to ground. Did the Door Lock Motor operate?</p> <p>Yes → Replace the Remote Keyless Entry Module. Perform BODY VER-2A. No → Go To 244</p>	All

POWER DOOR LOCKS/RKE

* REMOTE KEYLESS ENTRY INOPERATIVE — Continued

TEST	ACTION	APPLICABILITY
244	<p>Disconnect the Remote Keyless Entry Module.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>If not already done, connect jumper wires from Door Lock and Door Unlock Control (Cavities 5 and 11) to ground.</p> <p>Disconnect the Passenger Door Module 8-way Connector.</p> <p>Check connectors - Clean / repair as necessary.</p> <p>Using an ohmmeter, measure the Door Lock Control Ckt (Cav 1) to ground.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Passenger Door Module. Perform BODY VER-2A.</p> <p>No → Repair the open Door Lock Control Circuit. Perform BODY VER-2A.</p>	All

Symptom:

ANTENNA FAILURE

POSSIBLE CAUSES
SKIM DEFECTIVE - ANTENNA DTC

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ANTENNA FAILURE — Continued

Repair Instructions:

SKIM DEFECTIVE - ANTENNA DTC

Replace Sentry Key Module and perform the SKIM Initialization Procedure.

Perform BODY VER-2A.

Symptom: EEPROM FAILURE

When Monitored and Set Condition:

EEPROM FAILURE

When Monitored: At ignition ON and during the SKIM programming process, which programs SKIM's PIN the VIN, Country Code or additional keys.

Set Condition: This condition is set when an error occurs during programming the SKIM's EEPROM. The other condition that causes this code to mature is an EEPROM I²C link failure.

POSSIBLE CAUSES

HARD SKIM VIN MISMATCH
MAXIMUM KEY LIMIT
SENTRY KEY IS DEFECTIVE
SKIM KEY PROGRAMING FAILED
SKIM COMMUNICATION LINK FAILURE
SKIM DEFECTIVE - EEPROM DTC
SKIM DEFECTIVE - ID MISMATCH & EEPROM DTC
SKIM EEPROM FAILURE
SKIM HARD EEPROM FAILURE
SKIM IS DEFECTIVE
SKIM MULTIPLE FAILURE
SKIM PCM FAILURE
SKIM VIN MISMATCH
VIN DOES NOT MATCH
VIN MISMATCH NOT CLEARED

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EEPROM FAILURE — Continued

TEST	ACTION	APPLICABILITY
245	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s). Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>Which other (if any) SKIM DTC(s) were read on the DRB along with the selected DTC?</p> <p>None Go To 246</p> <p>Transponder ID or Response Mismatch Go To 247</p> <p>VIN Mismatch and Rolling Code Failure Test Complete.</p> <p>VIN Mismatch Go To 252</p>	All
246	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>Is selected DTC present?</p> <p>Yes → Replace Sentry Key Module and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Go To 249</p>	All

EEPROM FAILURE — Continued

TEST	ACTION	APPLICABILITY
247	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>Is selected DTC present?</p> <p style="padding-left: 40px;">Yes → Replace Sentry Key Module and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p style="padding-left: 40px;">No → Go To 248</p>	All
248	<p>Using the DRB, erase the SKIM trouble codes.</p> <p>Turn the Ignition Off and wait 10 seconds. Start the Engine 20 times.</p> <p>Using the DRB, read DTCs.</p> <p>Do the EEPROM FAILURE and TRANSPONDER trouble codes appear?</p> <p style="padding-left: 40px;">Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p style="padding-left: 40px;">EEPROM FAILURE only Go To 249</p> <p style="padding-left: 40px;">TRANSPONDER only Go To 250</p> <p style="padding-left: 40px;">Neither trouble code Test Complete.</p>	All
249	<p>Using the DRB, erase the SKIM trouble codes.</p> <p>Turn the Ignition Off and wait 10 seconds. Start the Engine 20 times.</p> <p>Using the DRB, read DTCs.</p> <p>Does an EEPROM FAILURE trouble code appear?</p> <p style="padding-left: 40px;">Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p style="padding-left: 40px;">No → Test Complete.</p>	All
250	<p>Using the DRB, select THEFT ALARM , SKIM , MISCELLANEOUS , SKIM KEY TEST and follow instructions on the DRB.</p> <p>Test the Key in the Sentry Key Tester.</p> <p>Does the Sentry Key pass the Key Test?</p> <p style="padding-left: 40px;">Yes → Go To 251</p> <p style="padding-left: 40px;">No → Erase the SKIM codes. Replace and program a new key. Perform BODY VER-2A.</p>	All

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EEPROM FAILURE — Continued

TEST	ACTION	APPLICABILITY
251	<p>Place the Key in the Ignition and turn Ignition to the Run position. Using the DRB, select: MISCELLANEOUS, PROGRAM NEW KEY and read status of CURRENT KEY. What was status of CURRENT KEY? Note: Erase codes if programming was successful.</p> <p>PROGRAMMING SUCCESSFUL. Test Complete.</p> <p>PROGRAMMING FAILED. Replace the SKIM and perform the Initialization Procedure. Perform BODY VER-2A.</p> <p>MAXIMUM KEY LIMIT. No additional Keys can be programmed. Perform BODY VER-2A.</p> <p>None of the above. Replace the SKIM and perform the Initialization Procedure. Perform BODY VER-2A.</p>	All
252	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged. View diagnostics for this PRE-EXISTING DTC.</p> <p>Go To 253</p>	All
253	<p>Using the DRB, erase the SKIM trouble codes. Start the Engine 20 times. Using the DRB, read DTCs. Does an EEPROM FAILURE trouble code appear?</p> <p>Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Go To 254</p>	All
254	<p>Start the Engine and allow it to run for 3 minutes. Using the DRB, read DTCs. What if any trouble codes appear?</p> <p>VIN MISMATCH Go To 255</p> <p>ROLLING CODE Go To 259</p> <p>None of the above. Test Complete.</p>	All

EEPROM FAILURE — Continued

TEST	ACTION	APPLICABILITY
255	<p>Using the DRB, read the VIN from the PCM. Does the VIN read from the DRB match the vehicle VIN Plate?</p> <p>Yes → Go To 256</p> <p>No → Replace the PCM. Perform BODY VER-2A.</p>	All
256	<p>Read the VIN stored in the SKIM's Memory. Does the VIN read from the SKIM match the vehicle's VIN Plate?</p> <p>Yes → Go To 257</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure Perform BODY VER-2A.</p>	All
257	<p>Using the DRB, erase the VIN Mismatch code. Verify that the Mismatch code has been cleared from memory. Did the VIN Mismatch erase from SKIM Memory?</p> <p>Yes → Go To 258</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p>	All
258	<p>Start the Engine and allow it to run for 3 minutes before proceeding. Using the DRB, read SKIM trouble codes. Did the SKIM Mismatch code re-occur?</p> <p>Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Test Complete.</p>	All
259	<p>Using the DRB, erase SKIM trouble codes if not previously erased. Using the DRB, select THEFT ALARM, SKIM. Does the DRB show NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE in the COMMUNICATION category.</p> <p>No → Go To 260</p>	All
260	<p>Using the DRB, erase SKIM trouble codes if not previously erased. Using the DRB, select: BODY, BODY COMPUTER, SYSTEM TEST, PCM MONITOR. Does the DRB show: PCM ACTIVE ON THE BUS?</p> <p>Yes → Go To 261</p> <p>No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p>	All

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EEPROM FAILURE — Continued

TEST	ACTION	APPLICABILITY
261	Using the DRB, erase SKIM trouble codes if not previously erased. Using the DRB, select: ENGINE then read DTCs. Are there any PCM related trouble codes? Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. Perform BODY VER-2A. No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.	All

Symptom:

INTERNAL SKIM FAILURE

When Monitored and Set Condition:

INTERNAL SKIM FAILURE

When Monitored: Monitored continuously when ignition is ON.

Set Condition: An INTERNAL SKIM FAILURE condition exists when an internal test that checks the SKIM's RAM capability fails, or power up of the micro controller fails or micro controller stack space is exceeded.

POSSIBLE CAUSES

SKIM DEFECTIVE - INTERNAL SKIM FAILURE DTC

SKIM HARD INTERNAL FAILURE

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INTERNAL SKIM FAILURE — Continued

TEST	ACTION	APPLICABILITY
262	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s).</p> <p>Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>Is selected DTC present?</p> <p>Yes → Replace Sentry Key Module and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Go To 263</p>	All
263	<p>Using the DRB, erase SKIM trouble codes.</p> <p>Turn the Ignition Off and wait 10 seconds. Start the Engine 20 times.</p> <p>Using the DRB, read DTCs.</p> <p>Is an INTERNAL SKIM FAILURE code present?</p> <p>Yes → Replace the SKIM and perform the SKIM INITIALIZATION PROCEDURE. Perform BODY VER-2A.</p> <p>No → Test Complete.</p>	All

Symptom:
PCM STATUS FAILURE

When Monitored and Set Condition:

PCM STATUS FAILURE

When Monitored: This condition is monitored at ignition ON and continuously during an ignition on cycle.

Set Condition: This condition exists when a PCM STATUS bus message was not received from the PCM. NOTE: Failure maturity time is 20 seconds.

POSSIBLE CAUSES

PCM EEPROM DTC PRESENT
SKIM COMMUNICATION LINK FAILURE
SKIM PCM FAILURE
SKIM PCM PROBLEM
SKIM UNIDENTIFIED PROBLEM

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PCM STATUS FAILURE — Continued

TEST	ACTION	APPLICABILITY
264	<p>With the DRB, select ENGINE and read Diagnostic Trouble Code(s)(DTC). Is an EEPROM DTC present?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. After PCM EEPROM DTC has been resolved, return to SKIS diagnostics. Perform BODY VER-2A.</p> <p>No → Go To 265</p>	All
265	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s). Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>Is selected DTC present?</p> <p>Yes → Go To 266</p> <p>No → Go To 269</p>	All
266	<p>Using the DRB, erase SKIM trouble codes if not previously erased.</p> <p>Using the DRB, select THEFT ALARM, SKIM.</p> <p>Does the DRB show NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE in the COMMUNICATION category.</p> <p>No → Go To 267</p>	All
267	<p>Using the DRB, erase SKIM trouble codes if not previously erased.</p> <p>Using the DRB, select: BODY, BODY COMPUTER, SYSTEM TEST, PCM MONITOR.</p> <p>Does the DRB show: PCM ACTIVE ON THE BUS?</p> <p>Yes → Go To 268</p> <p>No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p>	All
268	<p>Using the DRB, erase SKIM trouble codes if not previously erased.</p> <p>Using the DRB, select: ENGINE then read DTCs.</p> <p>Are there any PCM related trouble codes?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. Perform BODY VER-2A.</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p>	All

PCM STATUS FAILURE — Continued

TEST	ACTION	APPLICABILITY
269	<p>Using the DRB, erase SKIM trouble codes. Turn the Ignition Off and wait 10 seconds. Start the Engine 20 times. Using the DRB, read DTCs. Is a SKIM code present?</p> <p>Yes → Go To 270</p> <p>No → Test Complete.</p>	All
270	<p>Using the DRB, select THEFT ALARM, SKIM. Does the DRB show NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE in the COMMUNICATION category.</p> <p>No → Go To 271</p>	All
271	<p>Using the DRB, select: BODY, BODY COMPUTER, SYSTEM TEST, PCM MONITOR. Does the DRB show: PCM ACTIVE ON THE BUS?</p> <p>Yes → Go To 272</p> <p>No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p>	All
272	<p>Using the DRB, select: ENGINE then read DTCs. Are there any PCM related trouble codes?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. Perform BODY VER-2A.</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p>	All

VEHICLE THEFT/SECURITY

Symptom:
ROLLING CODE FAILURE

When Monitored and Set Condition:

ROLLING CODE FAILURE

When Monitored: At ignition ON, after ignition ON during any rolling code handshake that occurs with the PCM due to a SKIM or PCM reset.

Set Condition: This condition exists when a PCM STATUS message is not received by the SKIM within 3.5 seconds of transmitting what the SKIM believes to be a "key code" message to the PCM. The "key code" sent by the SKIM may or may not be "valid" in this case.

POSSIBLE CAUSES
PCM EEPROM DTC PRESENT
SKIM COMMUNICATION LINK FAILURE
SKIM PCM FAILURE
SKIM PCM PROBLEM
SKIM UNIDENTIFIED PROBLEM

ROLLING CODE FAILURE — Continued

TEST	ACTION	APPLICABILITY
273	<p>With the DRB, select ENGINE and read Diagnostic Trouble Code(s)(DTC). Is an EEPROM DTC present?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. After PCM EEPROM DTC has been resolved, return to SKIS diagnostics. Perform BODY VER-2A.</p> <p>No → Go To 274</p>	All
274	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s). Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>Which other (if any) SKIM DTC(s) were read on the DRB along with the selected DTC?</p> <p>None Go To 275</p> <p>VIN Mismatch with/without EEPROM Failure Test Complete.</p>	All
275	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>Is selected DTC present?</p> <p>Yes → Go To 276</p> <p>No → Go To 279</p>	All
276	<p>Using the DRB, erase SKIM trouble codes if not previously erased.</p> <p>Using the DRB, select THEFT ALARM, SKIM.</p> <p>Does the DRB show NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE in the COMMUNICATION category.</p> <p>No → Go To 277</p>	All

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ROLLING CODE FAILURE — Continued

TEST	ACTION	APPLICABILITY
277	<p>Using the DRB, erase SKIM trouble codes if not previously erased. Using the DRB, select: BODY, BODY COMPUTER, SYSTEM TEST, PCM MONITOR. Does the DRB show: PCM ACTIVE ON THE BUS?</p> <p>Yes → Go To 278</p> <p>No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p>	All
278	<p>Using the DRB, erase SKIM trouble codes if not previously erased. Using the DRB, select: ENGINE then read DTCs. Are there any PCM related trouble codes?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. Perform BODY VER-2A.</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p>	All
279	<p>Using the DRB, erase SKIM trouble codes. Turn the Ignition Off and wait 10 seconds. Start the Engine 20 times. Using the DRB, read DTCs. Is a SKIM code present?</p> <p>Yes → Go To 280</p> <p>No → Test Complete.</p>	All
280	<p>Using the DRB, select THEFT ALARM, SKIM. Does the DRB show NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE in the COMMUNICATION category.</p> <p>No → Go To 281</p>	All
281	<p>Using the DRB, select: BODY, BODY COMPUTER, SYSTEM TEST, PCM MONITOR. Does the DRB show: PCM ACTIVE ON THE BUS?</p> <p>Yes → Go To 282</p> <p>No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p>	All
282	<p>Using the DRB, select: ENGINE then read DTCs. Are there any PCM related trouble codes?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. Perform BODY VER-2A.</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p>	All

Symptom:**SERIAL LINK EXTERNAL FAILURE****When Monitored and Set Condition:****SERIAL LINK EXTERNAL FAILURE**

When Monitored: At ignition ON, after ignition ON during any rolling code handshake that occurs with the PCM due to a SKIM reset or a PCM reset, or during "Secret Key" transfers to the PCM.

Set Condition: This condition is set when the SKIM does not receive an expected bus message transmission acknowledgment from the PCM after 3 transmit attempts.

POSSIBLE CAUSES

PCM EEPROM DTC PRESENT

SKIM COMMUNICATION LINK FAILURE

SKIM PCM FAILURE

SKIM PCM PROBLEM

SKIM UNIDENTIFIED PROBLEM

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SERIAL LINK EXTERNAL FAILURE — Continued

TEST	ACTION	APPLICABILITY
283	<p>With the DRB, select ENGINE and read Diagnostic Trouble Code(s)(DTC). Is an EEPROM DTC present?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. After PCM EEPROM DTC has been resolved, return to SKIS diagnostics. Perform BODY VER-2A.</p> <p>No → Go To 284</p>	All
284	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s). Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>Is selected DTC present?</p> <p>Yes → Go To 285</p> <p>No → Go To 288</p>	All
285	<p>Using the DRB, erase SKIM trouble codes if not previously erased.</p> <p>Using the DRB, select THEFT ALARM, SKIM.</p> <p>Does the DRB show NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE in the COMMUNICATION category.</p> <p>No → Go To 286</p>	All
286	<p>Using the DRB, erase SKIM trouble codes if not previously erased.</p> <p>Using the DRB, select: BODY, BODY COMPUTER, SYSTEM TEST, PCM MONITOR.</p> <p>Does the DRB show: PCM ACTIVE ON THE BUS?</p> <p>Yes → Go To 287</p> <p>No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p>	All
287	<p>Using the DRB, erase SKIM trouble codes if not previously erased.</p> <p>Using the DRB, select: ENGINE then read DTCs.</p> <p>Are there any PCM related trouble codes?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. Perform BODY VER-2A.</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p>	All

SERIAL LINK EXTERNAL FAILURE — Continued

TEST	ACTION	APPLICABILITY
288	Using the DRB, erase SKIM trouble codes. Turn the Ignition Off and wait 10 seconds. Start the Engine 20 times. Using the DRB, read DTCs. Is a SKIM code present? Yes → Go To 289 No → Test Complete.	All
289	Using the DRB, select THEFT ALARM, SKIM. Does the DRB show NO RESPONSE? Yes → Refer to symptom * NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE in the COMMUNICATION category. No → Go To 290	All
290	Using the DRB, select: BODY, BODY COMPUTER, SYSTEM TEST, PCM MONITOR. Does the DRB show: PCM ACTIVE ON THE BUS? Yes → Go To 291 No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.	All
291	Using the DRB, select: ENGINE then read DTCs. Are there any PCM related trouble codes? Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. Perform BODY VER-2A. No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.	All

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Symptom:

SERIAL LINK EXTERNAL FAILURE-SENDING SECRET KEY TO PCM

When Monitored and Set Condition:

SERIAL LINK EXTERNAL FAILURE-SENDING SECRET KEY TO PCM

When Monitored: At ignition ON, after ignition ON during any rolling code handshake that occurs with the PCM due to a SKIM reset or a PCM reset, or during "Secret Key" transfers to the PCM.

Set Condition: This condition is set when the SKIM does not receive an expected bus message transmission acknowledgment from the PCM after 3 transmit attempts.

POSSIBLE CAUSES
PCM EEPROM DTC PRESENT
SKIM PCM PROBLEM
SKIM UNIDENTIFIED PROBLEM

SERIAL LINK EXTERNAL FAILURE-SENDING SECRET KEY TO PCM — Continued

TEST	ACTION	APPLICABILITY
292	<p>With the DRB, select ENGINE and read Diagnostic Trouble Code(s)(DTC). Is an EEPROM DTC present?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. After PCM EEPROM DTC has been resolved, return to SKIS diagnostics. Perform BODY VER-2A.</p> <p>No → Go To 293</p>	All
293	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s). Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>View diagnostics for this CURRENT DTC.</p> <p>Go To 294</p>	All
294	<p>Using the DRB, erase SKIM trouble codes.</p> <p>Attempt another Secret Key transfer to PCM.</p> <p>Using the DRB, read DTCs.</p> <p>Is a SERIAL LINK EXTERNAL code present?</p> <p>Yes → Go To 295</p> <p>No → Test Complete.</p>	All
295	<p>Using the DRB, select THEFT ALARM, SKIM.</p> <p>Does the DRB show NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE in the COMMUNICATION category.</p> <p>No → Go To 296</p>	All
296	<p>Using the DRB, select: BODY, BODY COMPUTER, SYSTEM TEST, PCM MONITOR.</p> <p>Does the DRB show: PCM ACTIVE ON THE BUS?</p> <p>Yes → Go To 297</p> <p>No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p>	All

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SERIAL LINK EXTERNAL FAILURE-SENDING SECRET KEY TO PCM — Continued

TEST	ACTION	APPLICABILITY
297	Using the DRB, select: ENGINE then read DTCs. Are there any PCM related trouble codes? Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. Perform BODY VER-2A. No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.	All

Symptom:**TRANSPONDER COMMUNICATION FAILURE****When Monitored and Set Condition:****TRANSPONDER COMMUNICATION FAILURE**

When Monitored: At ignition ON and during Key Programming Mode.

Set Condition: This failure condition exists when an invalid message format is received from the transponder after five consecutive transponder read attempts.

POSSIBLE CAUSES

SENTRY KEY FAILURE

SKIM COMMUNICATION FAILURE

TRANSPONDER CRC FAILURE

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TRANSPONDER COMMUNICATION FAILURE — Continued

TEST	ACTION	APPLICABILITY
298	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s). Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>Is selected DTC present?</p> <p>Yes → Go To 299</p> <p>No → Go To 300</p>	All
299	<p>Using the DRB, select THEFT ALARM , SKIM , MISCELLANEOUS , SKIM KEY TEST and follow instructions on the DRB.</p> <p>Place the Key in the Sentry Key Tester when instructed by the DRB.</p> <p>Does the Sentry Key pass the Key Test?</p> <p>Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Erase the SKIM codes. Replace and program a new Key. Perform BODY VER-2A.</p>	All
300	<p>Start the Engine several times using each of the customer's Keys.</p> <p>Using the DRB, read the SKIM trouble codes.</p> <p>Does the TRANSPONDER trouble code appear?</p> <p>Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Test Complete.</p>	All

Symptom:**TRANSPONDER CRC FAILURE****When Monitored and Set Condition:****TRANSPONDER CRC FAILURE**

When Monitored: At ignition ON and during Key Programming Mode.

Set Condition: This failure condition exists when five consecutive transponder signal transmissions are sent to the SKIM with the correct message format but with invalid data.

POSSIBLE CAUSES

SENTRY KEY FAILURE

SKIM COMMUNICATION FAILURE

TRANSPONDER CRC FAILURE

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TRANSPONDER CRC FAILURE — Continued

TEST	ACTION	APPLICABILITY
301	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s).</p> <p>Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>Is selected DTC present?</p> <p>Yes → Go To 302</p> <p>No → Go To 303</p>	All
302	<p>Using the DRB, select THEFT ALARM , SKIM , MISCELLANEOUS , SKIM KEY TEST and follow instructions on the DRB.</p> <p>Place the Key in the Sentry Key Tester when instructed by the DRB.</p> <p>Does the Sentry Key pass the Key Test?</p> <p>Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Erase the SKIM codes. Replace and program a new Key. Perform BODY VER-2A.</p>	All
303	<p>Start the Engine several times using each of the customer's Keys.</p> <p>Using the DRB, read the SKIM trouble codes.</p> <p>Does the TRANSPONDER trouble code appear?</p> <p>Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Test Complete.</p>	All

Symptom List:**TRANSPONDER ID MISMATCH****TRANSPONDER RESPONSE MISMATCH**

Test Note: All symptoms listed above are diagnosed using the same tests.
The title for the tests will be **TRANSPONDER ID MISMATCH**.

When Monitored and Set Condition:**TRANSPONDER ID MISMATCH**

When Monitored: At ignition ON and during Key Programming Mode.

Set Condition: This failure condition exists when the transponder ID read by the SKIM does not match any of those transponder ID's stored in the SKIM's memory.

TRANSPONDER RESPONSE MISMATCH

When Monitored: At ignition ON and during Key Programming Mode.

Set Condition: This condition exists when the transponder's secret algorithm result fails to match the SKIM's result.

POSSIBLE CAUSES

MAXIMUM KEY LIMIT

SENTRY KEY IS DEFECTIVE

SKIM KEY PROGRAMING FAILED

SKIM DEFECTIVE - ID MISMATCH & EEPROM DTC

SKIM HARD EEPROM FAILURE

SKIM IS DEFECTIVE

SKIM MULTIPLE FAILURE

TRANSPONDER CRC FAILURE

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TRANSPONDER ID MISMATCH — Continued

TEST	ACTION	APPLICABILITY
304	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s).</p> <p>Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>Which other (if any) SKIM DTC(s) were read on the DRB along with the selected DTC?</p> <p>None Go To 305</p> <p>EEPROM Failure Go To 307</p>	All
305	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>Is selected DTC present?</p> <p>Yes → Go To 310</p> <p>No → Go To 306</p>	All
306	<p>Start the Engine several times using each of the customer's Keys.</p> <p>Using the DRB, read the SKIM trouble codes.</p> <p>Does the TRANSPONDER trouble code appear?</p> <p>Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Test Complete.</p>	All

TRANSPONDER ID MISMATCH — Continued

TEST	ACTION	APPLICABILITY
307	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>Is selected DTC present?</p> <p style="padding-left: 40px;">Yes → Replace Sentry Key Module and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p style="padding-left: 40px;">No → Go To 308</p>	All
308	<p>Using the DRB, erase the SKIM trouble codes.</p> <p>Turn the Ignition Off and wait 10 seconds. Start the Engine 20 times.</p> <p>Using the DRB, read DTCs.</p> <p>Do the EEPROM FAILURE and TRANSPONDER trouble codes appear?</p> <p style="padding-left: 40px;">Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p style="padding-left: 40px;">EEPROM FAILURE only Go To 309</p> <p style="padding-left: 40px;">TRANSPONDER only Go To 310</p> <p style="padding-left: 40px;">Neither trouble code Test Complete.</p>	All
309	<p>Using the DRB, erase the SKIM trouble codes.</p> <p>Turn the Ignition Off and wait 10 seconds. Start the Engine 20 times.</p> <p>Using the DRB, read DTCs.</p> <p>Does an EEPROM FAILURE trouble code appear?</p> <p style="padding-left: 40px;">Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p style="padding-left: 40px;">No → Test Complete.</p>	All
310	<p>Using the DRB, select THEFT ALARM , SKIM , MISCELLANEOUS , SKIM KEY TEST and follow instructions on the DRB.</p> <p>Test the Key in the Sentry Key Tester.</p> <p>Does the Sentry Key pass the Key Test?</p> <p style="padding-left: 40px;">Yes → Go To 311</p> <p style="padding-left: 40px;">No → Erase the SKIM codes. Replace and program a new key. Perform BODY VER-2A.</p>	All

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TRANSPONDER ID MISMATCH — Continued

TEST	ACTION	APPLICABILITY
311	<p>Place the Key in the Ignition and turn Ignition to the Run position. Using the DRB, select: MISCELLANEOUS, PROGRAM NEW KEY and read status of CURRENT KEY. What was status of CURRENT KEY? Note: Erase codes if programming was successful.</p> <p>PROGRAMMING SUCCESSFUL. Test Complete.</p> <p>PROGRAMMING FAILED. Replace the SKIM and perform the Initialization Procedure. Perform BODY VER-2A.</p> <p>MAXIMUM KEY LIMIT. No additional Keys can be programmed. Perform BODY VER-2A.</p> <p>None of the above. Replace the SKIM and perform the Initialization Procedure. Perform BODY VER-2A.</p>	All

Symptom:
VIN MISMATCH**When Monitored and Set Condition:****VIN MISMATCH**

When Monitored: Monitored continuously during the engine run cycle.

Set Condition: This condition exists when the VIN received from the PCM does not match the VIN stored in the SKIM's EEPROM.

POSSIBLE CAUSES

HARD SKIM VIN MISMATCH

SKIM COMMUNICATION LINK FAILURE

SKIM EEPROM FAILURE

SKIM PCM FAILURE

SKIM VIN MISMATCH

VIN DOES NOT MATCH

VIN MISMATCH NOT CLEARED

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VIN MISMATCH — Continued

TEST	ACTION	APPLICABILITY
312	<p>With the DRB, select ENGINE and read Diagnostic Trouble Code(s)(DTC). Is an EEPROM DTC present?</p> <p>Yes → Refer to symptom P-1696 PCM FAILURE EEPROM WRITE DENIED in the DRIVEABILITY category.</p> <p>No → Go To 313</p>	All
313	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>With the DRB, read SKIM Diagnostic Trouble Code(s) (DTC) and record them. Erase the SKIM DTC(s). Cycle the Ignition OFF and then back to the Run/Start position. Leave it in that position for 3 minutes before attempting to read DTC(s). Read SKIM DTC(s) to verify that the code(s) displayed on the DRB are current faults. If the selected DTC is present at this time, it is current. If the selected DTC is not present at this time, it is pre-existing.</p> <p>Which other (if any) SKIM DTC(s) were read on the DRB along with the selected DTC?</p> <p>None Go To 314</p> <p>EEPROM Failure Go To 315</p> <p>Rolling Code with/without EEPROM Failure Go To 316</p>	All
314	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged.</p> <p>View diagnostics for this CURRENT DTC.</p> <p>Go To 318</p>	All

VIN MISMATCH — Continued

TEST	ACTION	APPLICABILITY
315	<p>Note: The Sentry Key Immobilizer System (SKIS) diagnosis may require usage of the customer's additional keys to verify the cause of the system failure.</p> <p>Note: In the event that the Sentry Key Immobilizer Module (SKIM) needs replacing, all of the keys previously programmed into the SKIM's memory must be programmed into the new SKIM.</p> <p>Note: Therefore, it is important that all of the customer's keys programmed for his/her vehicle be obtained prior to beginning vehicle diagnosis and repair.</p> <p>Ensure that the Battery is fully charged. View diagnostics for this PRE-EXISTING DTC.</p> <p>Go To 316</p>	All
316	<p>Using the DRB, erase the SKIM trouble codes. Start the Engine 20 times. Using the DRB, read DTCs. Does an EEPROM FAILURE trouble code appear?</p> <p>Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Go To 317</p>	All
317	<p>Start the Engine and allow it to run for 3 minutes. Using the DRB, read DTCs. What if any trouble codes appear?</p> <p>VIN MISMATCH Go To 318</p> <p>ROLLING CODE Go To 322</p> <p>None of the above. Test Complete.</p>	All
318	<p>Using the DRB, read the VIN from the PCM. Does the VIN read from the DRB match the vehicle VIN Plate?</p> <p>Yes → Go To 319</p> <p>No → Replace the PCM. Perform BODY VER-2A.</p>	All
319	<p>Read the VIN stored in the SKIM's Memory. Does the VIN read from the SKIM match the vehicle's VIN Plate?</p> <p>Yes → Go To 320</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p>	All
320	<p>Using the DRB, erase the VIN Mismatch code. Verify that the Mismatch code has been cleared from memory. Did the VIN Mismatch erase from SKIM Memory?</p> <p>Yes → Go To 321</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p>	All

VEHICLE THEFT/SECURITY

VIN MISMATCH — Continued

TEST	ACTION	APPLICABILITY
321	<p>Start the Engine and allow it to run for 3 minutes before proceeding. Using the DRB, read SKIM trouble codes. Did the SKIM Mismatch code re-occur?</p> <p>Yes → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p> <p>No → Test Complete.</p>	All
322	<p>Using the DRB, erase SKIM trouble codes if not previously erased. Using the DRB, select THEFT ALARM, SKIM. Does the DRB show NO RESPONSE?</p> <p>Yes → Refer to symptom * NO RESPONSE FROM SENTRY KEY IMMOBLIZER MODULE in the COMMUNICATION category.</p> <p>No → Go To 323</p>	All
323	<p>Using the DRB, erase SKIM trouble codes if not previously erased. Using the DRB, select: BODY, BODY COMPUTER, SYSTEM TEST, PCM MONITOR. Does the DRB show: PCM ACTIVE ON THE BUS?</p> <p>Yes → Go To 324</p> <p>No → Refer to symptom * NO RESPONSE FROM POWERTRAIN CONTROL MODULE in the COMMUNICATION category.</p>	All
324	<p>Using the DRB, erase SKIM trouble codes if not previously erased. Using the DRB, select: ENGINE then read DTCs. Are there any PCM related trouble codes?</p> <p>Yes → Refer to the Symptom List for problems related to Powertrain Diagnostics. Perform BODY VER-2A.</p> <p>No → Replace the SKIM and perform the SKIM Initialization Procedure. Perform BODY VER-2A.</p>	All

Verification Tests

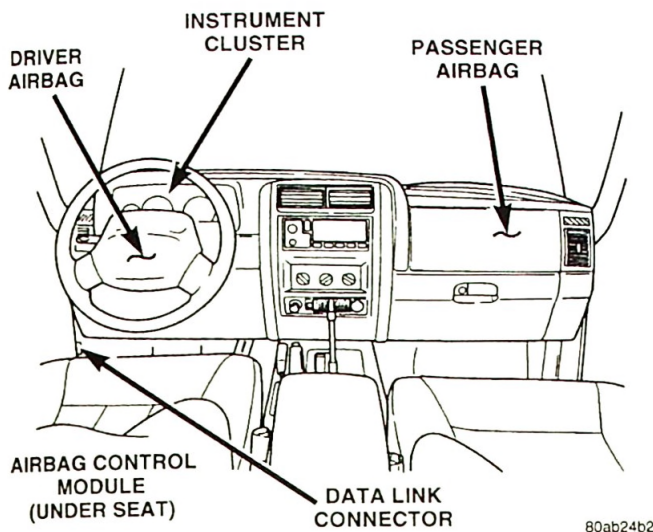
AIRBAG VERIFICATION TEST-1A	APPLICABILITY
<ol style="list-style-type: none"> 1. Remove all jumper wires and reconnect all previously disconnected components (except the battery). 2. Turn Ignition Key On and then reconnect the Battery. 3. Connect the DRB to the Data Link Connector (use the most current software available). 4. Use the DRB to erase stored codes. 5. Turn Ignition Off and wait 15 seconds before turning Ignition On. 6. Wait one minute, and with the DRB, read both active and stored codes. 7. If the DRB shows any active or stored codes, return to the Symptom list and follow path specified for that trouble code. If no active or stored codes are present, the repair is complete. 	All

BODY VERIFICATION TEST VER-2A	APPLICABILITY
<ol style="list-style-type: none"> 1. Reconnect all previously disconnected components and connectors. 2. Turn Ignition On (Engine Off). 3. Fully operate the system that was malfunctioning. If the System operated properly, repair is complete. If not, return to the Symptom list and pick a symptom that best indicated the problem. 4. If the Sentry Key Immobilizer Module was replaced obtain the vehicle's unique PIN number. If it was not replaced then continue to next step. 5. With the DRB, Obtain the vehicle's unique PIN number assigned to its original SKIM module from either the vehicle's invoice or from Chrysler's Customer Center. 6. With the DRB, select THEFT ALARM, SKIM, MISCELLANEOUS. Select SKIM MODULE REPLACED function and the DRB will prompt you through the following steps. 7. Enter secured access mode using the unique 4 digit PIN number. 8. Program the vehicle's VIN number into the SKIM's memory. 9. Program the country code into the SKIM's memory (U.S.). 10. Transfer the vehicle's unique Secret Key data from the PCM. This process will require the SKIM module to be in secured access mode. The PIN number must be entered into the DRB before the SKIM will enter secured access mode. 11. Once secured access mode is active, the SKIM will remain in that mode for 60 seconds. 12. Program all customer keys into the SKIM's memory. This requires that the SKIM be in secured access mode. The SKIM module will immediately exit secured access mode after each key is programmed. 13. NOTE: Secured access mode is not required to query the programmed status of the key. 14. NOTE 1: If a PCM is replaced, the unique Secret Key data must be transferred from the SKIM module to the PCM. This procedure requires the SKIM to be placed in secured access mode using the 4-digit PIN code. 15. NOTE 2: If three attempts are made to enter secured access mode using an incorrect PIN, secured access mode will be locked out for one hour. To exit this locked out mode, turn the ignition to the Run position for one hour. 16. Continue Note 2: (Ensure all accessories are turned off. Also monitor the battery state and connect a battery charger if necessary). 17. To program Sentry Keys using the CUSTOMER PROGRAMMING method, which requires two valid smart keys, refer to either the owner's or service manuals. 18. Turn Ignition On, then wait 3 minutes. with the DRB read the SKIM Trouble Codes. If no codes are present and the system is operational, the repair is complete. 19. If any codes are present, select and perform the appropriate test from the symptom list. 	All

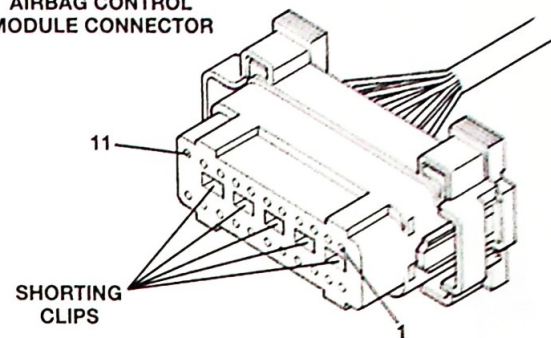
NOTES

8.0 COMPONENT LOCATIONS

8.1 AIRBAG MODULE



AIRBAG CONTROL MODULE CONNECTOR

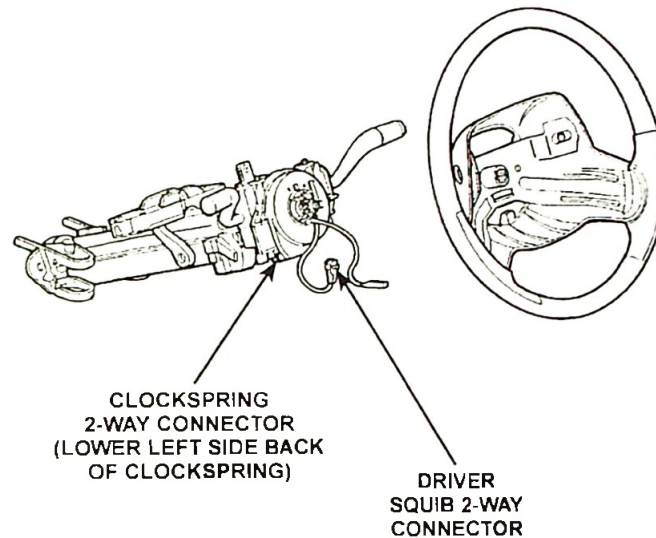


A SHORTING CLIP IS ONE SAFEGUARD BUILT INTO THE AIRBAG SYSTEM TO PREVENT ACCIDENTAL DEPLOYMENT WHEN HANDLING THE AIRBAG ASSEMBLY. STATIC CHARGES OR RADIO FREQUENCY NOISE CAN CAUSE ELECTRICAL POTENTIAL TO DEVELOP IN THE AIRBAG INITIATOR. SHORTING CLIPS PREVENT THIS WHEN THE CONNECTOR IS REMOVED FROM THE CONTROL MODULE.

DO NOT PROBE, BEND OR REMOVE SHORTING CLIPS

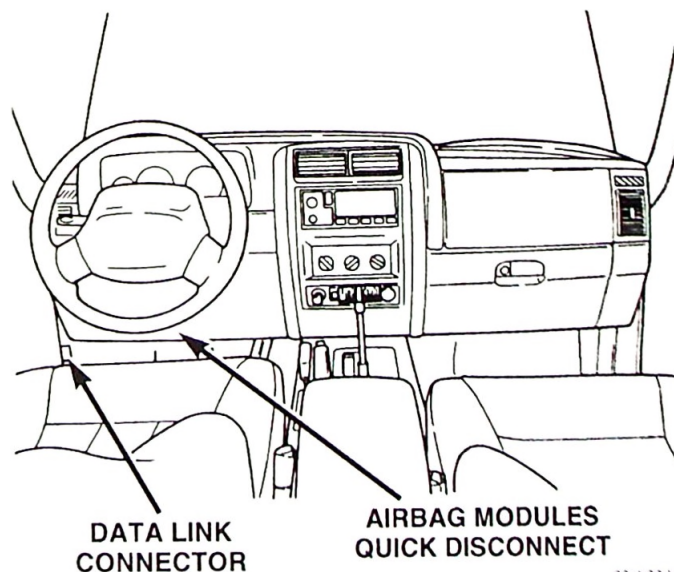
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8.2 CLOCKSPRING



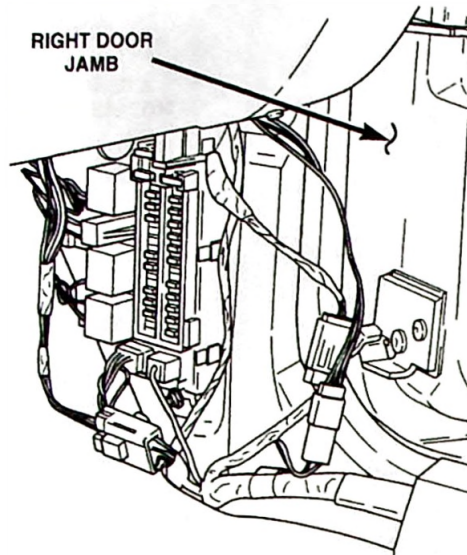
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8.3 AIRBAG MODULES QUICK DISCONNECT



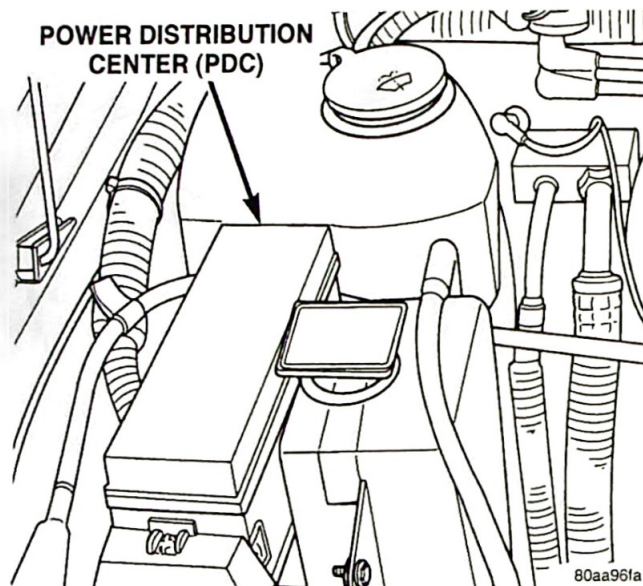
COMPONENT LOCATIONS

8.4 JUNCTION BLOCK



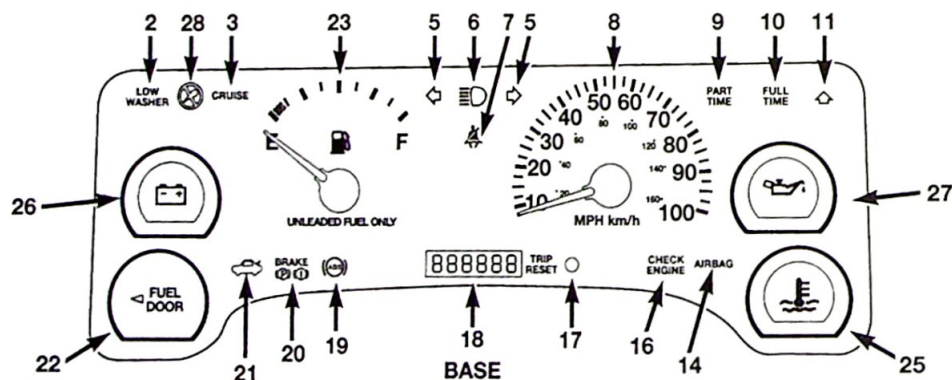
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8.5 POWER DISTRIBUTION CENTER



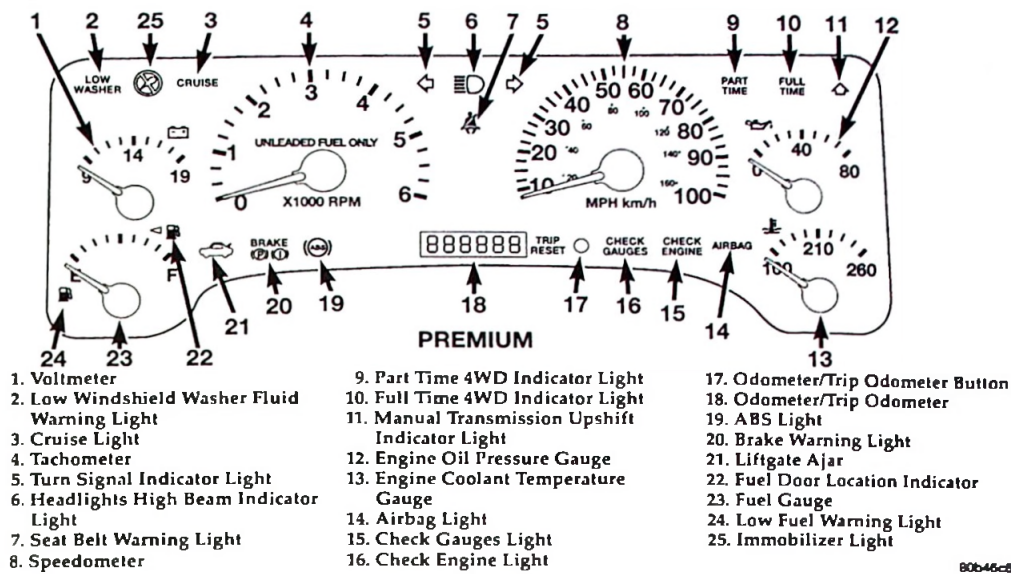
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8.6 MECHANICAL INSTRUMENT CLUSTER

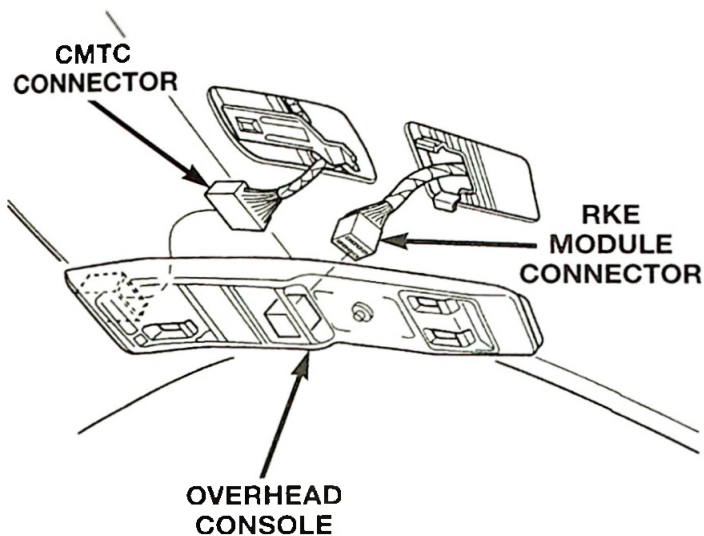


- | | | |
|--|---|--|
| 2. Low Windshield Washer Fluid Warning Light | 11. Manual Transmission Upshift Indicator Light | 22. Fuel Door Location Indicator |
| 3. Cruise Light | 14. Airbag Light | 23. Fuel Gauge |
| 5. Turn Signal Indicator Light | 16. Check Engine Light | 25. Engine Coolant Temperature Warning Light |
| 6. Headlight High Beam Indicator | 17. Odometer/Trip Odometer Button | 26. Charging System Warning Light |
| 7. Seat Belt Warning Light | 18. Odometer/Trip Odometer | 27. Oil Pressure Warning Light |
| 8. Speedometer | 19. ABS Light | 28. Immobilizer Light |
| 9. Part Time 4WD Indicator Light | 20. Brake Warning Light | |
| 10. Full Time 4WD Indicator Light | 21. Liftgate Ajar | |

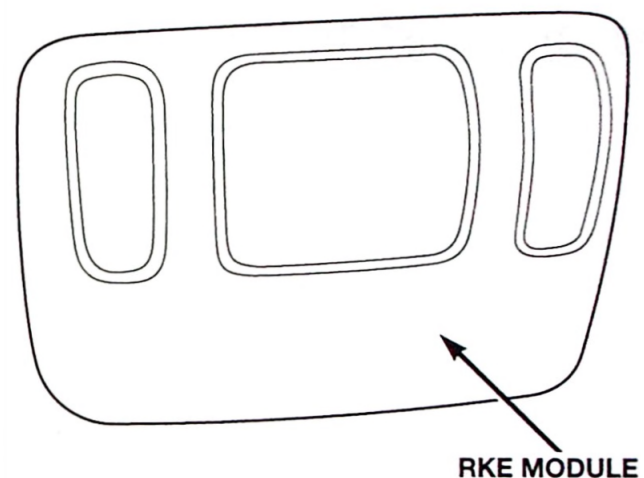
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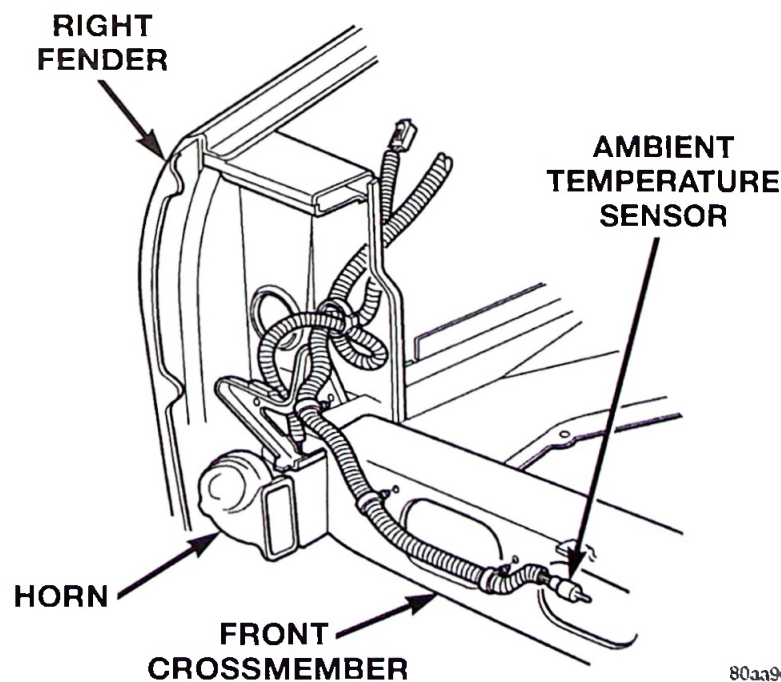
8.7 REMOTE KEYLESS ENTRY



MINI-DOME

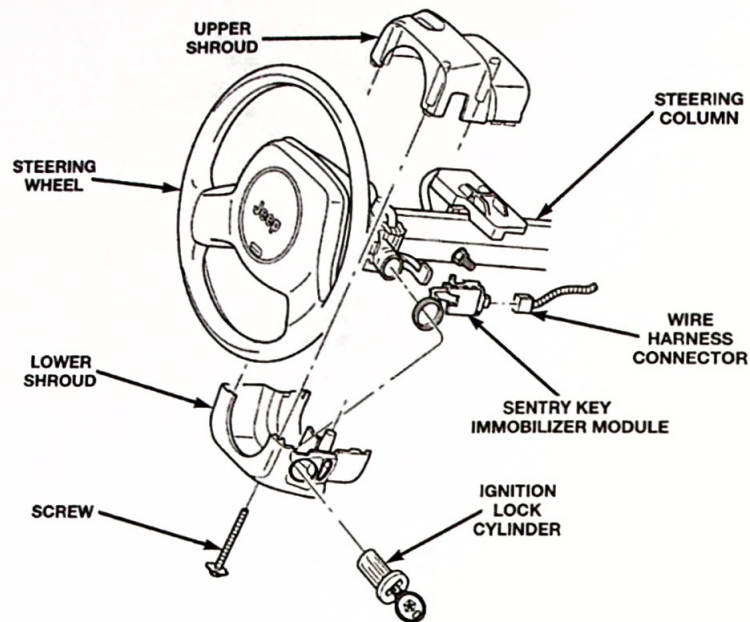


8.8 AMBIENT TEMPERATURE SENSOR



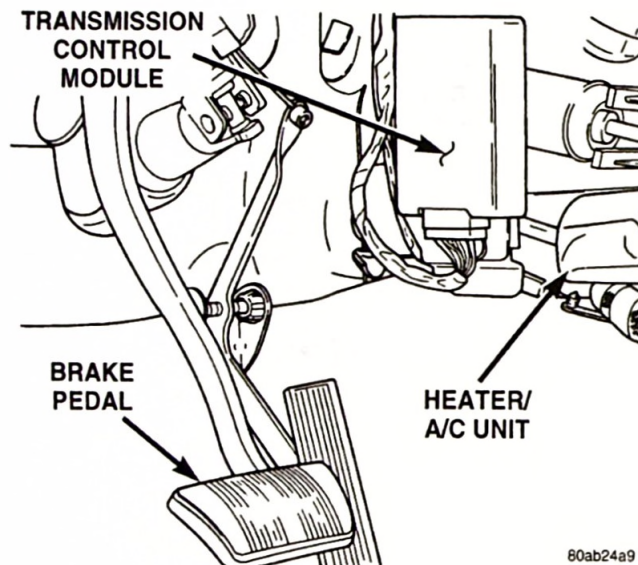
COMPONENT LOCATIONS

8.9 SENTRY



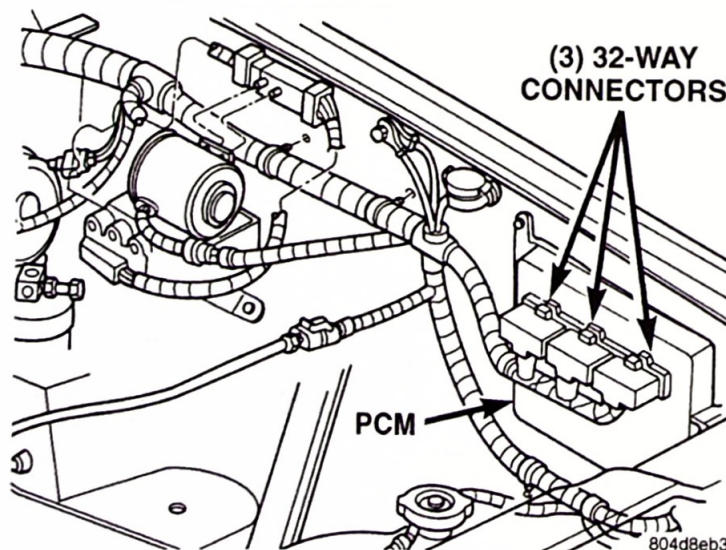
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8.10 TRANSMISSION CONTROL MODULE

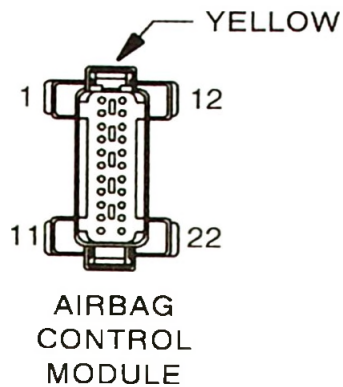


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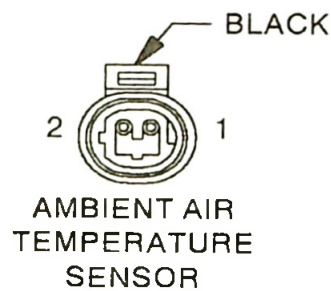
8.11 POWERTRAIN CONTROL MODULE



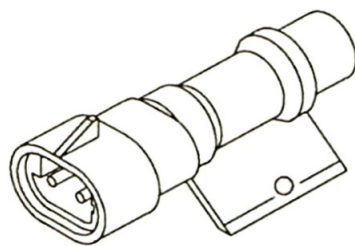
9.0 CONNECTOR PINOUTS



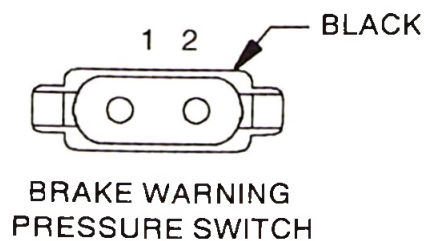
AIRBAG CONTROL MODULE - YELLOW 20 WAY		
CAV	CIRCUIT	FUNCTION
1	R45 18DG/LB	DRIVER AIRBAG LINE 2
2	R43 18BK/LB	DRIVER AIRBAG LINE 1
3	-	-
4	-	-
5	R42 18BK/YL	PASSENGER AIRBAG LINE 1
6	R44 18DG/YL	PASSENGER AIRBAG LINE 2
7	-	-
8	-	-
9	-	-
10	Z6 18BK/YL (BASE)	GROUND
10	Z6 18BKPK (FULL OP-TIONS)	GROUND
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	F23 18DB/YL	FUSED IGNITION SWITCH OUTPUT (RUN)
18	D2 18WT/BK	CCD BUS (-)
19	D1 18VT/BR	CCD BUS (+)
20	F14 18LG/YL	FUSED IGNITION SWITCH OUTPUT (ST-RUN)



AMBIENT AIR TEMPERATURE SENSOR - BLACK 2 WAY		
CAV	CIRCUIT	FUNCTION
1	G31 20VT/LG	AMBIENT TEMPERATURE SENSOR SIGNAL
2	G32 20BK/LB	SENSOR GROUND

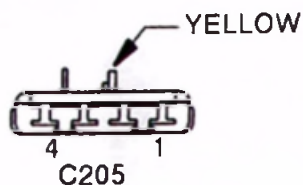


AMBIENT TEMPERATURE SENSOR (SENSOR SIDE) 2 WAY		
CAV	CIRCUIT	FUNCTION
1	-	AMBIENT TEMPERATURE SENSOR SIGNAL
2	-	SENSOR GROUND



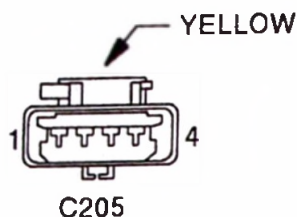
BRAKE WARNING PRESSURE SWITCH - BLACK 2 WAY		
CAV	CIRCUIT	FUNCTION
1	G9 20GY/BK	RED BRAKE WARNING INDICATOR DRIVER
2	G99 20GY/WT	RED BRAKE WARNING INDICATOR DRIVER

CONNECTOR PINOUTS



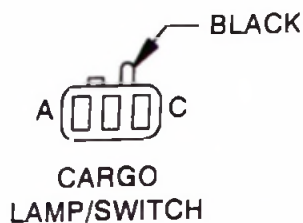
C205 - YELLOW (AIRBAG SQUIB SIDE)

CAV	CIRCUIT	FUNCTION
1	R42 18BK/YL	PASSENGER AIRBAG LINE 1
2	R44 18DG/YL	PASSENGER AIRBAG LINE 2
3	R43 18BK/LB	DRIVER AIRBAG LINE 1
4	R45 18DG/LB	DRIVER AIRBAG LINE 2



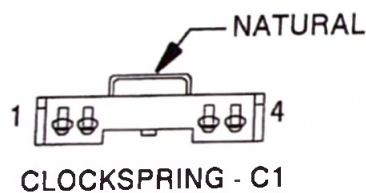
C205 - YELLOW (I/P HARNESS SIDE)

CAV	CIRCUIT	FUNCTION
1	R42 18BK/YL	PASSENGER AIRBAG LINE 1
2	R44 18DG/YL	PASSENGER AIRBAG LINE 2
3	R43 18BK/LB	DRIVER AIRBAG LINE 1
4	R45 18DG/LB	DRIVER AIRBAG LINE 2



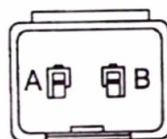
CARGO LAMP/ SWITCH - BLACK 3 WAY

CAV	CIRCUIT	FUNCTION
A	M1 18PK (RHD)	FUSED B(+)
A	M1 20PK (LHD)	FUSED B(+)
B	M2 20YL	SWITCHED GROUND
C	M4 20GY/BK	GATE GROUND



CLOCKSPRING C1 - NATURAL 4 WAY

CAV	CIRCUIT	FUNCTION
1	X3 20BK/RD	HORN RELAY CONTROL
2	V37 20RD/LG	SPEED CONTROL SWITCH SIGNAL
3	K4 20BK/LB (RHD)	SENSOR GROUND
3	K4 20BK/RD (LHD)	SENSOR GROUND
4	-	-

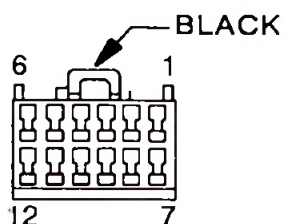


CLOCKSPRING C2 - 2 WAY

CAV	CIRCUIT	FUNCTION
A	BK/LB	DRIVER AIRBAG LINE 1
B	DG/LB	DRIVER AIRBAG LINE 2

CLOCKSPRING - C2

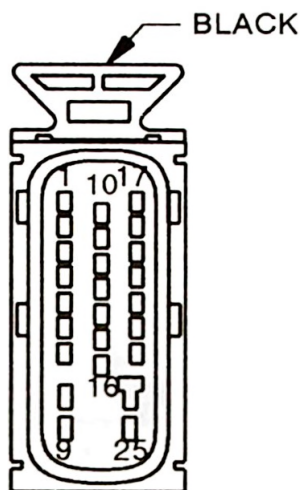
CONNECTOR PINOUTS



COMPASS

COMPASS - BLACK 12 WAY

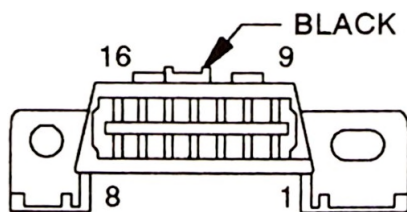
CAV	CIRCUIT	FUNCTION
1	Z1 20BK	GROUND
2	M1 20PK	FUSED B(+)
3	-	-
4	G31 20VT/LG	AMBIENT TEMPERATURE SENSOR SIGNAL
5	D1 20VT/BR	CCD BUS (+)
6	F87 20WT/BK	FUSED IGNITION SWITCH OUTPUT (ST-RUN)
7	M2 20YL	COURTESY LAMP CONTROL
8	-	-
9	-	-
10	G32 20BK/LB	SENSOR GROUND
11	D2 20WT/BK	CCD BUS (-)
12	Z2 20BK/LG	LOGIC GROUND



CONTROLLER
ANTI-LOCK
BRAKE

CONTROLLER ANTI-LOCK BRAKE - BLACK 25 WAY

CAV	CIRCUIT	FUNCTION
1	B1 18YL/DB	RIGHT REAR WHEEL SPEED SENSOR (-)
2	B3 18LG/DB	LEFT REAR WHEEL SPEED SENSOR (-)
3	B7 18WT	RIGHT FRONT WHEEL SPEED SENSOR (+)
4	B9 18RD	LEFT FRONT WHEEL SPEED SENSOR (+)
5	-	-
6	B41 18YL/VT	G SWITCH NO. 1 SENSE
7	B42 18TN/WT	G SWITCH NO. 2 SENSE
8	Z1 12BK	GROUND
9	A20 12RD/DB	FUSED B(+)
10	B4 18LG	LEFT REAR WHEEL SPEED SENSOR (+)
11	B8 18RD/DB	LEFT FRONT WHEEL SPEED SENSOR (-)
12	L50 18WT/TN	BRAKE LAMP SWITCH OUTPUT
13	B43 18PK/OR	G SWITCH TEST SIGNAL
14	-	-
15	-	-
16	G83 18GY/BK	ABS RELAY CONTROL
17	B2 18YL	RIGHT REAR WHEEL SPEED SENSOR (+)
18	B6 18WT/DB	RIGHT REAR WHEEL SPEED SENSOR (-)
19	-	-
20	D21 18PK	SCI TRANSMIT
21	-	-
22	-	-
23	F15 18DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN)
24	Z1 12BK	GROUND
25	A10 12RD/DG	FUSED B(+)



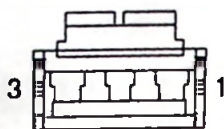
DATA LINK
CONNECTOR

DATA LINK CONNECTOR - BLACK 16 WAY

CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	D1 18VT/BR	CCD BUS (+)
4	Z1 18BK	GROUND
5	Z12 18BK/TN	GROUND
6	D20 20LG/BK	SCI RECEIVE
7	D21 20PK	SCI TRANSMIT
8	-	-
9	-	-
10	-	-
11	D2 18WT/BK	CCD BUS (-)
12	-	-
13	-	-
14	-	-
15	-	-
16	F34 18TN/BK	FUSED B(+)

CONNECTOR PINOUTS

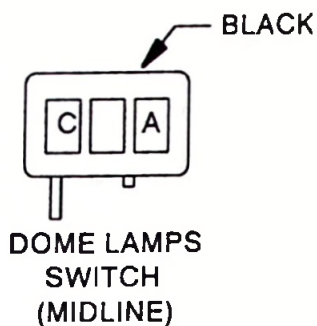
CONNECTOR PINOUTS



DOME LAMP
(BASE/POLICE)

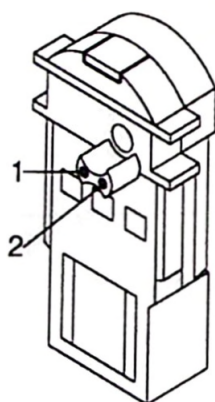
DOME LAMP (BASE/POLICE) - 3 WAY

CAV	CIRCUIT	FUNCTION
1	-	-
2	M1 20PK	FUSED B(+)
3	M2 20YL	COURTESY LAMPS SWITCH OUTPUT



DOME LAMPS SWITCH (MIDLINE) - BLACK 3 WAY

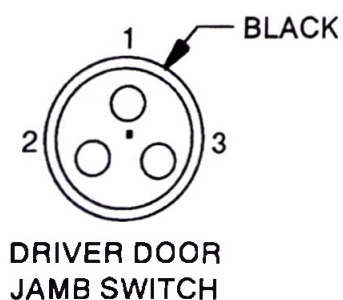
CAV	CIRCUIT	FUNCTION
A	Z1 20BK	GROUND
B	M2 20YL	COURTESY LAMPS SWITCH OUTPUT
C	M1 20PK	FUSED B(+)



DRIVER AIRBAG
SQUIB

DRIVER AIRBAG SQUIB

CAV	CIRCUIT	FUNCTION
1	BK	DRIVER AIRBAG LINE 1
2	BK	DRIVER AIRBAG LINE 2



DRIVER DOOR JAMB SWITCH - BLACK 3 WAY

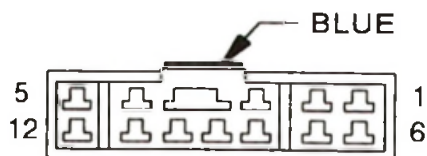
CAV	CIRCUIT	FUNCTION
1	M2 18YL	COURTESY LAMP CONTROL
2	G16 18BK/LB	DRIVER DOOR AJAR SWITCH SENSE
3	Z1 18BK	GROUND



DRIVER DOOR
LOCK MOTOR

DRIVER DOOR LOCK MOTOR - 2 WAY

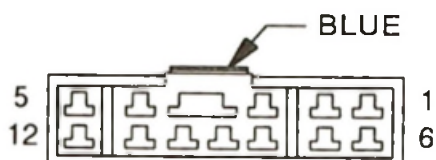
CAV	CIRCUIT	FUNCTION
1	P34 16PK/BK	UNLOCK RELAY OUTPUT
2	P33 16OR/BK	DOOR LOCK DRIVER



DRIVER POWER
LOCK/WINDOW
SWITCH-C1
(LHD)
(FULL OPTIONS)

DRIVER POWER LOCK/ WINDOW SWITCH C1 (LHD) (FULL OPTIONS) - BLUE 12 WAY

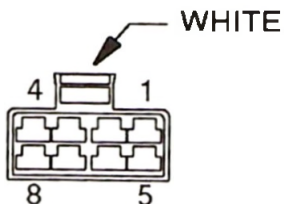
CAV	CIRCUIT	FUNCTION
1	Q28 14DG/WT	MASTER WINDOW SWITCH RIGHT REAR DOWN
2	Q18 14GY/BK	RIGHT REAR WINDOW DRIVER UP
3	Q16 14BR/WT	MASTER WINDOW SWITCH RIGHT FRONT UP
4	Q17 14DB/WT	LEFT REAR WINDOW DRIVER UP
5	Q11 14LB	LEFT WINDOW DRIVER UP
6	Q26 14VT/WT	MASTER WINDOW SWITCH RIGHT FRONT DOOR
7	P35 18QR/VT	DRIVER LOCK SWITCH CONTROL
8	Z1 14BK	GROUND
9	F81 14TN	FUSED B(+)
10	Q27 14RD/BK	LEFT REAR WINDOW DRIVER (DOWN)
11	P36 18PK/VT	DOOR UNLOCK RELAY CONTROL
12	Q21 14WT	LEFT FRONT WINDOW DRIVER (DOWN)



DRIVER POWER
LOCK/WINDOW
SWITCH-C1
(RHD)
(FULL OPTIONS)

DRIVER POWER LOCK/ WINDOW SWITCH C1 (RHD)(FULL OPTIONS) - BLUE 12 WAY

CAV	CIRCUIT	FUNCTION
1	Q28 14DG/WT	-
2	Q18 14GY/BK	RIGHT REAR WINDOW DRIVER UP
3	Q11 14BR	LEFT WINDOW DRIVER UP
4	Q17 14DB/WT	LEFT REAR DRIVER DOWN
5	Q16 14BR/WT	MASTER WINDOW SWITCH RIGHT FRONT UP
6	Q21 14VT	LEFT FRONT WINDOW DRIVER UP
7	P35 18OR/VT	DRIVER LOCK SWITCH CONTROL
8	Z1 14BK	GROUND
9	F81 14TN	FUSED B(+)
10	Q27 14RD/BK	LEFT REAR WINDOW DRIVER (DOWN)
11	P36 18PK/VT	DOOR UNLOCK RELAY CONTROL
12	Q26 14VT/WT	MASTER WINDOW SWITCH RIGHT FRONT DOOR

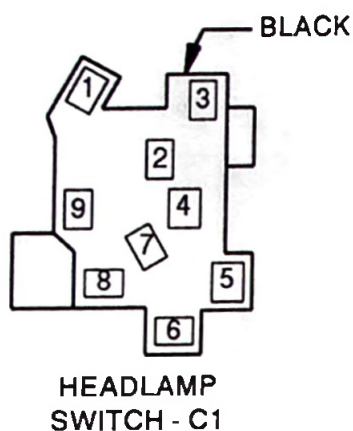


DRIVER POWER
LOCK/WINDOW
SWITCH-C2
(FULL OPTIONS)

DRIVER POWER LOCK/ WINDOW SWITCH C2 (FULL OPTIONS) - WHITE 8 WAY

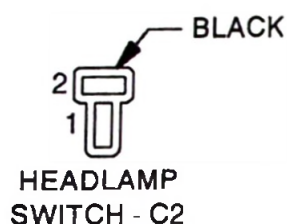
CAV	CIRCUIT	FUNCTION
1	P71 20YL (LHD)	LEFT POWER MIRROR LEFT MOVEMENT
1	P71 20YL/LB (RHD)	LEFT POWER MIRROR LEFT MOVEMENT
2	P76 20OR/YL	COMMON
3	F83 18YL/DG	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
4	P74 20DB	RIGHT POWER MIRROR LEFT MOVEMENT
5	Z1 14BK (LHD)	GROUND
5	Z1 16BK (RHD)	GROUND
6	P75 20DB/WT	LEFT POWER MIRROR UP MOVEMENT
7	P72 20YL/BK	RIGHT POWER MIRROR UP MOVEMENT
8	A1 14YL	POWER WINDOW SWITCH FEED

CONNECTOR PINOUTS



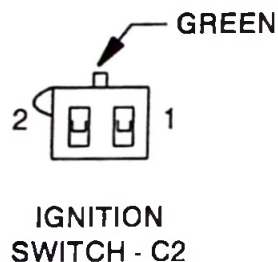
HEADLAMP SWITCH C1 - BLACK 9 WAY

CAV	CIRCUIT	FUNCTION
1	E1 20TN	PANEL LAMPS DIMMER SWITCH SIGNAL
2	L2 14LG	HEADLAMP SWITCH OUTPUT
3	M2 20YL	COURTESY LAMPS DRIVER
4	F34 18TN/BK	FUSED B(+)
4	F34 18TN/BK (LHD)	FUSED B(+)
5	G26 20LB	DOOR LOCK INHIBIT SENSE
6	G16 20BK/LB	DRIVER DOOR AJAR SWITCH SENSE
7	L20 14LG/WT	FUSED B(+)
8	A3 14RD/WT	FUSED B(+)
8	A3 14RD/WT	FUSED B(+)
9	L7 18BK/YL	HEADLAMP SWITCH OUTPUT



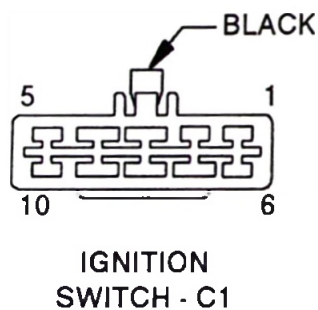
HEADLAMP SWITCH C2 - BLACK 2 WAY

CAV	CIRCUIT	FUNCTION
1	Z1 18BK	GROUND
1	Z1 18BK	GROUND
2	-	-



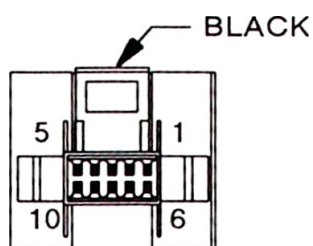
IGNITION SWITCH C2 - GREEN 2 WAY

CAV	CIRCUIT	FUNCTION
1	G26 20LB	KEY-IN IGNITION SWITCH SENSE
2	G16 20BK/LB	DRIVER DOOR AJAR SWITCH SENSE



IGNITION SWITCH C1 - BLACK 10 WAY

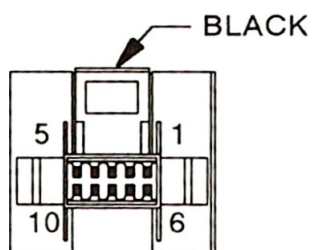
CAV	CIRCUIT	FUNCTION
1	Z1 20BK	GROUND
2	G9 20GY/BK	RED BRAKE INDICATOR WARNING DRIVER
3	A2 12PK/BK	FUSED B(+)
4	A22 12BK/OR	FUSED IGNITION SWITCH OUTPUT (RUN)
5	-	-
6	-	-
7	A1 12 RD	FUSED B(+)
8	A31 12BK/WT	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
9	A21 12DB	FUSED IGNITION SWITCH OUTPUT (ST-RUN)
10	A41 14YL	FUSED IGNITION SWITCH OUTPUT (START)



INSTRUMENT
CLUSTER - C1
(LHD)

INSTRUMENT CLUSTER C1 (LHD) - BLACK 10 WAY

CAV	CIRCUIT	FUNCTION
1	G78 20TN/BK	LIFTGATE AJAR SWITCH SENSE
2	G99 20G/YWT	RED BRAKE WARNING INDICATOR DRIVER
3	E2 200R	FUSED PANEL LAMPS DIMMER SWITCH SIGNAL
4	G19 20LG/OR	ABS INDICATOR DRIVER
5	G34 16RD/GY	HIGH BEAM INDICATOR DRIVER
6	Z2 20BK/LG	GROUND
7	G29 20BK/LB	LOW WASHER FLUID SENSE
8	F87 20WT/BK	FUSED IGNITION SWITCH OUTPUT (START-RUN)
9	M1 20PK	FUSED B(+)
10	L61 20LG/WT	LEFT TURN SIGNAL

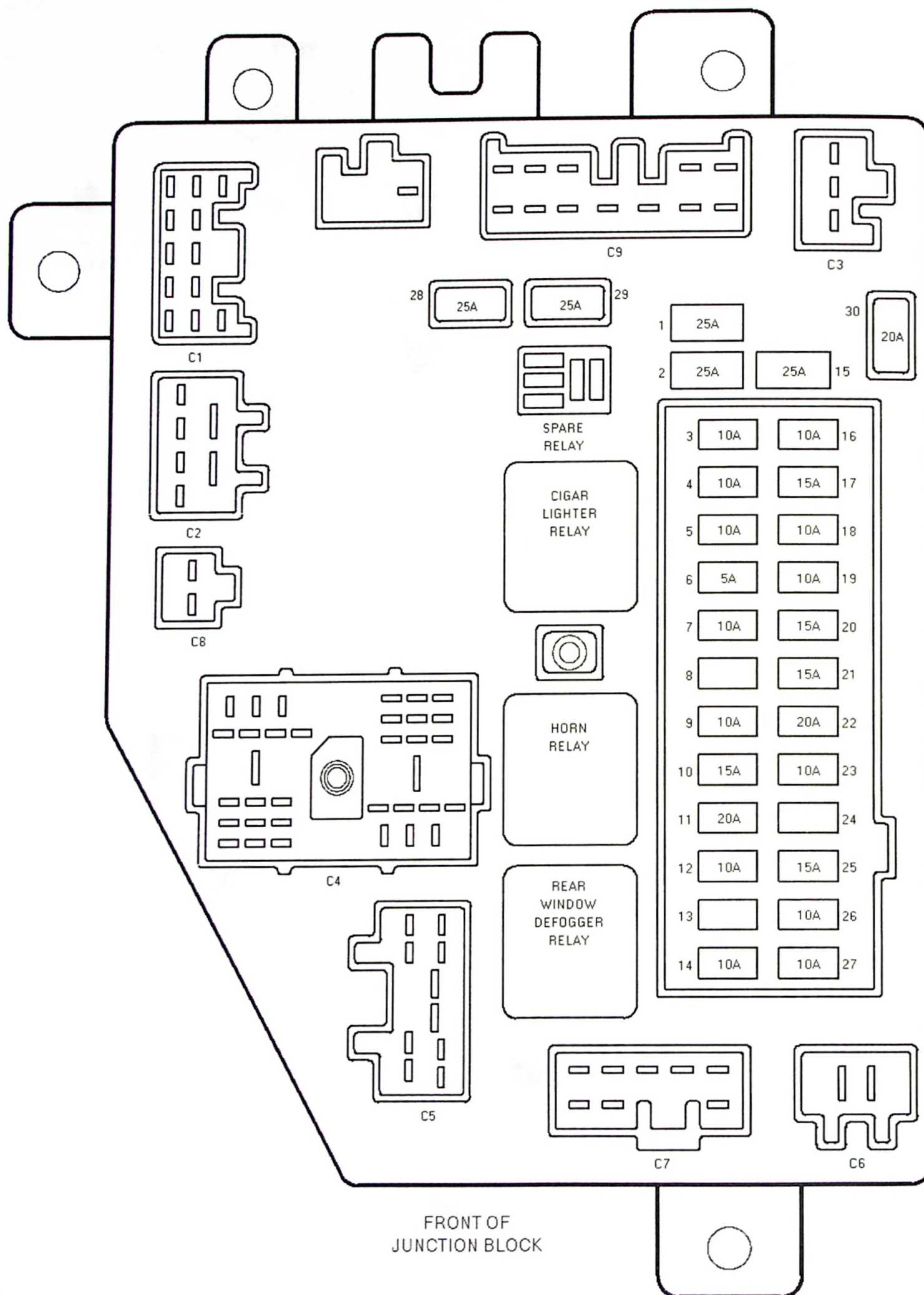


INSTRUMENT
CLUSTER - C2

INSTRUMENT CLUSTER C2 - BLACK 10 WAY

CAV	CIRCUIT	FUNCTION
1	D2 20WT/BK	CCD BUS (-)
2	D1 20VT/BR	CCD BUS (+)
3	C81 20LB/WT	REAR WINDOW DEFOGGER RELAY CONTROL
4	C80 20DB/WT	REAR WINDOW DEFOGGER SWITCH SENSE
5	G107 20BK/RD	4WD SWITCH SENSE
6	L60 20TN	RIGHT TURN SIGNAL
7	G106 20BK/WT	PART TIME 4WD INDICATOR LAMP
8	G26 20LB	DOOR LOCK INHIBIT SENSE
9	Z2 18BK/LG	GROUND
10	G10 20LG/RD	SEAT BELT SWITCH SENSE

CONNECTOR PINOUTS



FUSES

FUSE NO.	AMPS	FUSED CIRCUIT	FEED CIRCUIT
1	25A	F38 16RD/LB	A7 10RD/BK
2	25A	INTERNAL	A7 10RD/BK
3	10A	L33 20RD	L3 16RD/OR
4	10A	L43 20VT	L4 16VT/WT
5	10A	L44 20VT/RD	L4 16VT/WT
6	5A	E2 20OR	E1 20TN
7	10A	INTERNAL	L7 18BK/YL
8	-	-	A21 12DB
9	10A	F87 20WT/BK	A21 12DB
10	15A	F20 18WT	A21 12DB
11	20A	F12 18DB/WT	A21 12DB
12	10A	INTERNAL	A22 12BK/OR
12	10A	L5 20BK	A22 12BK/OR
13	-	-	A4 12BK/PK
14	10A	INTERNAL	INTERNAL
15	25A	F35 16RD	A7 10RD/BK
16	10A	L34 20RD/OR	L3 16RD/OR
17	15A	X12 16RD/WT	A31 12BK/WT
18	10A	F83 18YL/DG	A31 12BK/WT
19	10A	F45 20YL/RD	A41 14YL
20	15A	A6 20RD/OR	A7 10RD/BK
21	15A	INTERNAL	A7 10RD/BK
22	20A	V23 18BR/PK	A22 12BK/OR
23	10A	INTERNAL	L7 18BK/YL
24	-	-	A22 12BK/OR
25	15A	F15 20DB/WT	A22 12BK/OR
26	10A	F14 18LG/YL	A22 12BK/OR
27	10A	F23 18DB/YL	A21 12DB

CIGAR LIGHTER RELAY

CAV	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	Z1 14BK	GROUND
86	A31 12BK/WT	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
87	F30 16RD	CIGAR LIGHTER RELAY OUTPUT
87A	-	-

CIRCUIT BREAKERS

CB NO.	AMPS	FUSED CIRCUIT
		FEED CIRCUIT
28	25A	INTERNAL
29	25A	F37 15RD/LB
30	20A	AV6 16DB

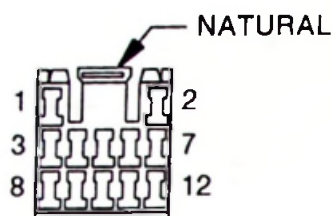
HORN RELAY

CAV	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	X3 20BK/RD	HORN RELAY CONTROL
86	A7 10RD/BK	FUSED B(+)
87	X2 20DG/RD	HORN RELAY OUTPUT
87A	-	-

REAR WINDOW DEFOGGER RELAY

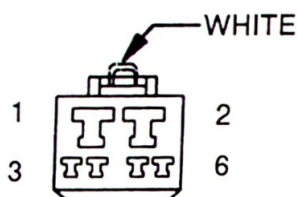
CAV	CIRCUIT	FUNCTION
30	A4 12BK/PK	FUSED B(+)
85	C81 20LB/WT	REAR WINDOW DEFOGGER RELAY CONTROL
86	INTERNAL	FUSED IGNITION SWITCH OUTPUT (RUN)
87	C15 12BK/WT	REAR WINDOW DEFOGGER RELAY OUTPUT
87A	-	-

CONNECTOR PINOUTS



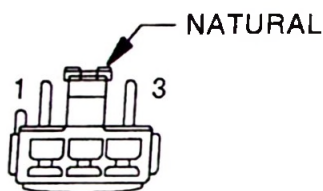
JUNCTION
BLOCK - C1

JUNCTION BLOCK C1 - NATURAL 12 WAY		
CAV	CIRCUIT	FUNCTION
1	L44 20VT/RD	FUSED RIGHT LOW BEAM OUTPUT
2	-	-
3	F45 20YL/RD	FUSED B(+) ENGINE STARTER MOTOR RELAY
4	-	-
5	L78 20DG/YL	FUSED HEADLAMP SWITCH OUTPUT
6	F15 20DB/WT (4.0L)	FUSED IGNITION SWITCH OUTPUT (RUN)
7	-	-
8	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
9	L33 20RD	FUSED LEFT HIGH BEAM OUTPUT
10	L43 20VT	FUSED LEFT LOW BEAM OUTPUT
11	L34 20RD/OR	FUSED RIGHT HIGH BEAM OUTPUT
12	M1 20PK	FUSED B(+)



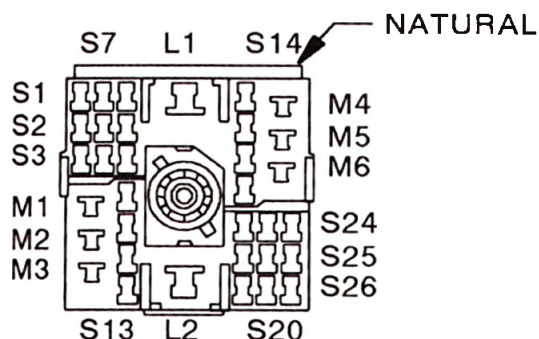
JUNCTION
BLOCK - C2

JUNCTION BLOCK C2 - WHITE 6 WAY		
CAV	CIRCUIT	FUNCTION
1	A4 12BK/PK	FUSED B(+)
2	A7 10RD/BK	FUSED B(+)
3	-	-
4	X2 20DG/RD	HORN RELAY OUTPUT
5	F12 18DB/WT	FUSED IGNITION SWITCH OUTPUT (ST-RUN)
6	L77 20BR/YL	FUSED LEFT INBOARD TAIL LAMP

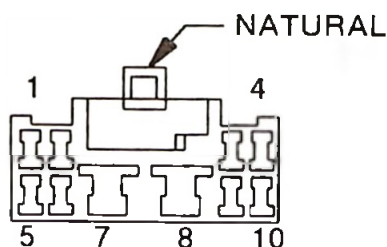


JUNCTION
BLOCK - C3

JUNCTION BLOCK C3 - NATURAL 3 WAY		
CAV	CIRCUIT	FUNCTION
1	M2 20YL	COURTESY LAMPS DRIVER
2	Z1 20BK (OVERHEAD CONSOLE)	GROUND
3	M1 20PK	FUSED B(+)



JUNCTION
BLOCK - C4



JUNCTION
BLOCK - C5

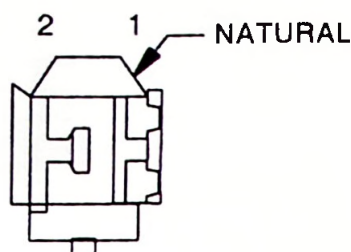
JUNCTION BLOCK C4 - NATURAL 33 WAY

CAV	CIRCUIT	FUNCTION
L1	A31 12BK/WT	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
L2	A21 12DB	FUSED IGNITION SWITCH OUTPUT (ST-RUN)
M1	A41 14YL	FUSED IGNITION SWITCH OUTPUT (START)
M2	A22 12BK/OR	FUSED IGNITION SWITCH OUTPUT (RUN)
M3	L7 18BK/YL	HEADLAMP SWITCH OUTPUT
M4	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
M5	F38 16RD/LB	FUSED B(+)
M6	F30 16RD	CIGAR LIGHTER RELAY OUTPUT
S1	E1 20TN	PANEL LAMPS DIMMER SWITCH SIGNAL
S2	E2 20OR	FUSED PANEL LAMPS DIMMER SWITCH SIGNAL
S3	L4 16VT/WT	DIMMER SWITCH LOW BEAM OUTPUT
S4	F83 18YL/DG	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
S5	Z1 14BK	GROUND
S6	-	-
S7	L3 16RD/OR	HIGH BEAM INDICATOR DRIVER
S8	F15 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN)
S9	X12 16RD/WT	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
S10	-	-
S11	V23 18BR/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
S12	F20 18WT	FUSED IGNITION SWITCH OUTPUT (ST-RUN)
S13	F87 20WT/BK	FUSED IGNITION SWITCH OUTPUT (ST-RUN)
S14	-	-
S15	-	-
S16	-	-
S17	-	-
S18	M1 20PK	FUSED B(+)
S19	C16 20BK/WT (RHD)	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
S19	C16 20LB/YL (LHD)	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
S20	L5 20BK	FUSED IGNITION SWITCH OUTPUT (RUN)
S21	F14 18LG/RD	FUSED IGNITION SWITCH OUTPUT (RUN)
S22	X3 20BK/RD	HORN RELAY CONTROL
S23	F23 18DB/YL	FUSED IGNITION SWITCH OUTPUT (ST-RUN)
S24	-	-
S25	M2 20YL	COURTESY LAMPS DRIVER
S26	C81 20LB/WT	REAR WINDOW DEFOGGER RELAY CONTROL

JUNCTION BLOCK C5 - NATURAL 10 WAY

CAV	CIRCUIT	FUNCTION
1	X3 20BK/RD	HORN RELAY CONTROL
2	P76 20OR/YL	COMMON
3	P91 20WT/BK	LEFT/RIGHT POWER MIRROR HORIZONTAL SUPPLY
4	-	-
5	C16 20LB/YL (RHD)	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
6	-	-
7	F35 16RD (RHD)	FUSED B(+)
8	F81 12TN	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
9	P74 20DB	RIGHT POWER MIRROR LEFT MOVEMENT
10	P72 20YL/BK	RIGHT POWER MIRROR UP MOVEMENT

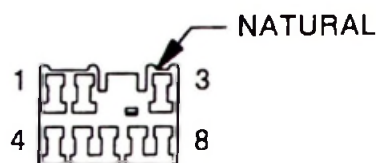
CONNECTOR PINOUTS



JUNCTION
BLOCK - C6

JUNCTION BLOCK C6 - NATURAL 2 WAY

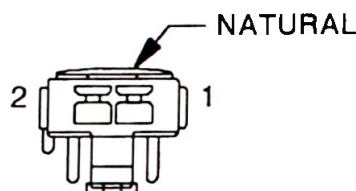
CAV	CIRCUIT	FUNCTION
1	C15 12BK/WT	REAR WINDOW DEFOGGER RELAY OUTPUT
2	F37 14RD/LB (POWER SEATS)	FUSED B(+)



JUNCTION
BLOCK - C7

JUNCTION BLOCK C7 - NATURAL 8 WAY

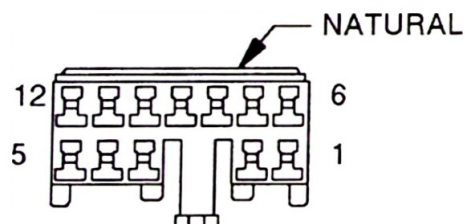
CAV	CIRCUIT	FUNCTION
1	P33 16OR/BK (FULL OPTIONS)	DOOR LOCK DRIVER
2	L77 18BR/YL	FUSED LEFT INBOARD TAIL LAMP
3	P91 20WT/BK (RHD FULL OPTIONS)	LEFT/RIGHT POWER MIRROR HORIZONTAL SUPPLY
4	M1 20PK	FUSED B(+)
5	P34 16PK/BK (FULL OPTION)	DOOR UNLOCK DRIVER
6	L78 18DG/YL	FUSED HEADLAMP SWITCH OUTPUT
7	M2 20YL	COURTESY LAMPS DRIVER
8	A6 20RD/OR	FUSED B(+)



JUNCTION
BLOCK - C8

JUNCTION BLOCK C8 - NATURAL 2 WAY

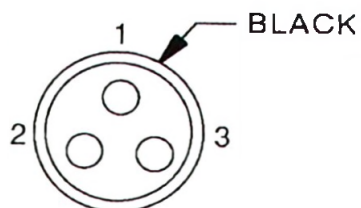
CAV	CIRCUIT	FUNCTION
1	F81 14TN	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
2	-	-



JUNCTION
BLOCK - C9
(LHD)

JUNCTION BLOCK C9 (LHD) - NATURAL 12 WAY

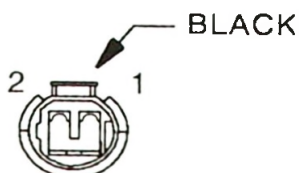
CAV	CIRCUIT	FUNCTION
1	P33 16OR/BK	DOOR LOCK DRIVER
2	P74 20DB	RIGHT POWER MIRROR LEFT MOVEMENT
3	C16 20BK/WT	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
4	-	-
5	-	-
6	P72 20YL/BK (POWER MIRRORS LHD)	RIGHT POWER MIRROR UP MOVEMENT
7	P91 20WT/BK (POWER MIRRORS LHD)	LEFT/RIGHT POWER MIRROR HORIZONTAL SUPPLY
8	-	-
9	F35 16RD	FUSED B(+)
10	P76 20OR/YL	COMMON
11	Z1 16BK	GROUND
11	Z1 18BK (POWER MIRRORS LHD)	GROUND
12	P34 16PK/BK	DOOR UNLOCK DRIVER



LEFT REAR
DOOR JAMB
SWITCH

LEFT REAR DOOR JAMB SWITCH - BLACK 3 WAY

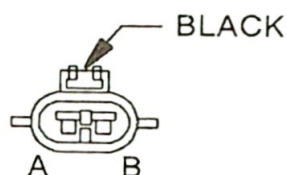
CAV	CIRCUIT	FUNCTION
1	-	-
2	Z1 188K	GROUND
3	M2 18YL	COURTESY LAMP CONTROL



LEFT REAR
DOOR LOCK
MOTOR

LEFT REAR DOOR LOCK MOTOR - BLACK 2 WAY

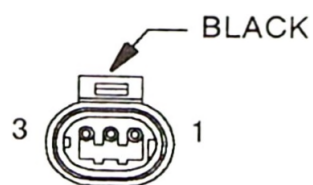
CAV	CIRCUIT	FUNCTION
1	P34 16PK/BK	UNLOCK RELAY OUTPUT
2	P3 160R/BK	DOOR LOCK RELAY DRIVER



LIFTGATE
LOCK MOTOR

LIFTGATE LOCK MOTOR - BLACK 2 WAY

CAV	CIRCUIT	FUNCTION
A	P33 160R/BK	DOOR LOCK RELAY DRIVER
B	P34 16PK/BK	DOOR LOCK RELAY DRIVER

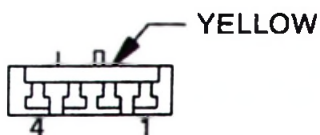


LIFTGATE
SWITCH

LIFTGATE SWITCH - BLACK 3 WAY

CAV	CIRCUIT	FUNCTION
1	Z1 20BK	GROUND
2	G78 20TN/BK	LIFTGATE AJAR SWITCH SENSE
3	M4 20VT/YL	LIFTGATE COURTESY LAMPS DRIVER

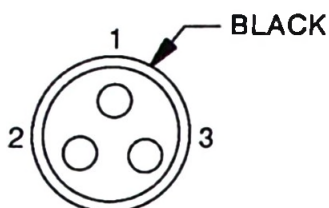
CONNECTOR PINOUTS



PASSENGER
AIRBAG

PASSENGER AIRBAG - YELLOW 4 WAY

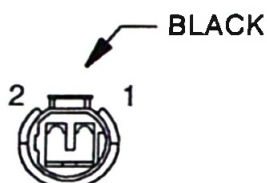
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	R42 18BK/YL	PASSENGER AIRBAG LINE 1
4	R44 18DG/YL	PASSENGER AIRBAG LINE 2



PASSENGER
DOOR JAMB
SWITCH

PASSENGER DOOR JAMB SWITCH - BLACK 3 WAY

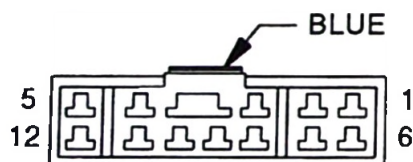
CAV	CIRCUIT	FUNCTION
1	M2 18YL	COURTESY LAMPS CONTROL
2	G16 18BK/LB	LEFT DOOR AJAR SWITCH SENSE
3	Z1 18BK	GROUND



PASSENGER
DOOR LOCK
MOTOR

PASSENGER DOOR LOCK MOTOR - BLACK 2 WAY

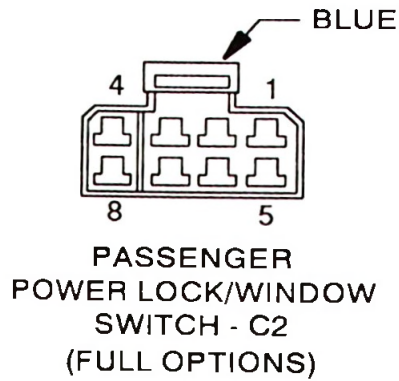
CAV	CIRCUIT	FUNCTION
1	P34 16PK/BK	UNLOCK RELAY OUTPUT
2	P33 16OR/BK	DOOR LOCK RELAY DRIVER



PASSENGER
POWER LOCK/WINDOW
SWITCH - C1
(FULL OPTIONS)

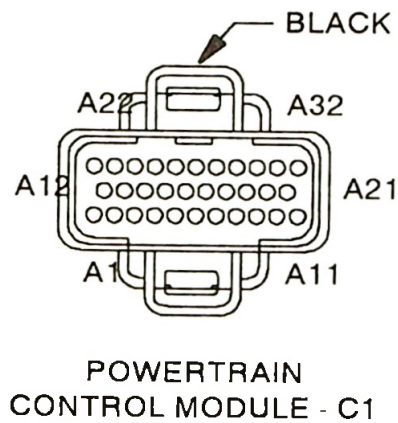
PASSENGER POWER LOCK/ WINDOW SWITCH C1 (FULL OPTIONS) - BLUE 12 WAY

CAV	CIRCUIT	FUNCTION
1	P34 16PK/BK	UNLOCK RELAY OUTPUT
2	Q22 14VT	RIGHT FRONT WINDOW DRIVER (DOWN)
3	26 14VT/WT	MASTER SWITCH RIGHT FRONT WINDOW MOTOR (DOWN)
4	Q16 14BR/WT	MASTER WINDOW SWITCH RIGHT FRONT DOWN
5	P33 16OR/BK	DOOR LOCK RELAY DRIVER
6	-	-
7	-	-
8	-	-
9	Q12 14BR	RIGHT FRONT WINDOW DRIVER (UP)
10	Q1 14YL	POWER WINDOW SWITCH FEED
11	-	-
12	-	-



PASSENGER POWER LOCK/ WINDOW SWITCH C2 (FULL OPTIONS) - BLUE 8 WAY

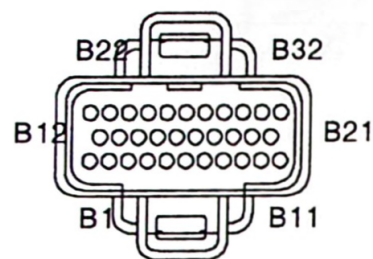
CAV	CIRCUIT	FUNCTION
1	P59 20LB/RD	DOOR LOCK CONTROL
2	P55 20DB (RHD)	DOOR UNLOCK RELAY CONTROL
2	P55 20DB/PK (LHD)	DOOR UNLOCK RELAY CONTROL
3	P35 200R/VT (LHD)	LOCK REQUEST
3	P36 18PK/VT (RHD)	DOOR UNLOCK SWITCH SENSE
4	F81 14TN	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
5	F35 16RD	FUSED B(+)
6	Z1 14BK	GROUND
7	P35 180R/VT (RHD)	LOCK REQUEST
7	P36 20PK/VT (LHD)	DOOR UNLOCK SWITCH SENSE
8	G26 20LB	DOOR LOCK INHIBIT SENSE



POWERTRAIN CONTROL MODULE C1 - BLACK 32 WAY

CAV	CIRCUIT	FUNCTION
A1	-	-
A2	F12 18DB/WT	FUSED IGNITION SWITCH OUTPUT (ST-RUN)
A3	-	-
A4	K167 18BR/YL	SENSOR RETURN
A5	-	-
A6	T41 18BK/WT (2.5L A/T)	PARK/NEUTRAL POSITION SWITCH SENSE
A6	T41 18BK/WT (4.0L A/T)	TRANSMISSION RANGE SWITCH SENSE
A6	Z1 18BK	GROUND
A7	K19 18GY	IGNITION COIL NO. 1 DRIVER
A8	K24 18GY/BK	CRANKSHAFT POSITION SENSOR SIGNAL
A9	-	-
A10	K60 18YL/BK	IDLE AIR CONTROL NO. 2 DRIVER
A11	K40 18BR/WT	IDLE AIR CONTROL NO. 3 DRIVER
A12	K10 18DB/BR (2.5L)	POWER STEERING PRESSURE SENSE
A12	K78 18GY (4.0L A/T)	IDLE ACTUATOR
A13	-	-
A14	-	-
A15	K21 18BK/RD	INTAKE AIR TEMPERATURE SENSOR SIGNAL
A16	K2 18TN/BK	ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
A17	K7 18OR	5 VOLT SUPPLY
A18	K44 18TN/YL	CAMSHAFT POSITION SENSOR SIGNAL
A19	K39 18GY/RD	IDLE AIR CONTROL NO.1 DRIVER
A20	K59 18VT/BK	IDLE AIR CONTROL NO.1 DRIVER
A21	-	-
A22	A61 16DG/BK	FUSED B(+)
A23	K22 18OR/DG	THROTTLE POSITION SENSOR SIGNAL
A24	K41 18BK/DG	UPSTREAM HEATED OXYGEN SENSOR
A25	K141 18TN/WT	DOWNSTREAM HEATED OXYGEN SENSOR
A26	-	-
A27	K1 18DG/RD	MANIFOLD ABSOLUTE PRESSURE SENSOR SIGNAL
A28	-	-
A29	-	-
A30	-	-
A31	Z12 14BK/TN	GROUND
A32	Z12 14BK/TN	GROUND

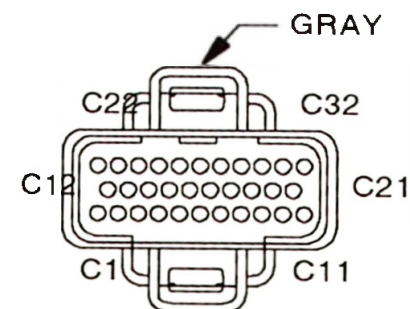
CONNECTOR PINOUTS



POWERTRAIN
CONTROL MODULE - C2

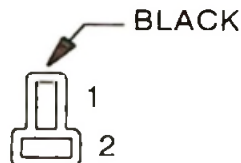
POWERTRAIN CONTROL MODULE C2 - 32 WAY

CAV	CIRCUIT	FUNCTION
B1	-	-
B2	-	-
B3	-	-
B4	K11 18WT/DB	FUEL INJECTOR NO. 1 DRIVER
B5	K13 18YL/WT	FUEL INJECTOR NO. 3 DRIVER
B6	K15 18PK/BK	FUEL INJECTOR NO. 5 DRIVER
B7	-	-
B8	-	-
B9	-	-
B10	K20 18DG	GENERATOR FIELD DRIVER
B11	K54 18OR/BK (2.5L A-3)	-
B12	K16 18LG/BK (4.0I0	FUEL INJECTOR NO. 6 DRIVER
B13	K54 18OR/BK (2.5L)	TORQUE CONVERTER CLUTCH SOLENOID CONTROL
B14	-	-
B15	K12 18TN	FUEL INJECTOR NO. 2 DRIVER
B16	K14 18LB/BR	FUEL INJECTOR NO. 4 DRIVER
B17	-	-
B18	-	-
B19	-	-
B20	-	-
B21	-	-
B22	-	-
B23	G60 18GY/YL	ENGINE OIL PRESSURE SENSOR SIGNAL
B24	-	-
B25	-	-
B26	-	-
B27	G7 18WT/OR	VEHICLE SPEED SENSOR SIGNAL
B28	-	-
B29	-	-
B30	-	-
B31	K6 18VT/OR	5 VOLT SUPPLY
B32	-	-



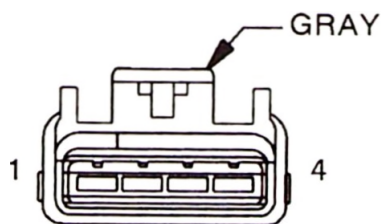
POWERTRAIN
CONTROL MODULE - C3

POWERTRAIN CONTROL MODULE C3 - GRAY 32 WAY		
CAV	CIRCUIT	FUNCTION
C1	C13 18DB/OR	A/C COMPRESSOR CLUTCH RELAY CONTROL
C2	C27 18DB/PK	RADIATOR FAN RELAY CONTROL
C3	K51 18DB/YL	AUTOMATIC SHUT DOWN RELAY CONTROL
C4	V36 18TN/RD	SPEED CONTROL VACUUM SOLENOID CONTROL
C5	V35 18LG/RD	SPEED CONTROL VENT SOLENOID CONTROL
C6	-	-
C7	-	-
C8	-	-
C9	-	-
C10	K106 18WT/DG (4.0L)	LEAK DETECTION PUMP SOLENOID CONTROL
C11	V32 18YL/RD	SPEED CONTROL POWER SUPPLY
C12	A142 18DG/OR	AUTOMATIC SHUT DOWN RELAY OUTPUT
C13	-	-
C14	K105 18OR	BATTERY TEMPERATURE SENSOR SIGNAL
C15	K188 18PK/YL (4.0L)	LEAK DETECTION PUMP SWITCH SENSE
C16	-	-
C17	-	-
C18	-	-
C19	K31 18BR	FUEL PUMP RELAY CONTROL
C20	K52 18PK/BK	EVAPORATIVE EMISSION SOLENOID CONTROL
C21	-	-
C22	C22 18DB/WT	A/C SWITCH SENSE
C23	C90 18LG	A/C SELECT INPUT
C24	K29 18WT/PK	BRAKE SWITCH SENSE
C25	K72 18DG/OR	GENERATOR DRIVER
C26	K226 18DB/LG	FUEL PUMP RELAY CONTROL
C27	D21 18PK	SCI TRANSMIT
C28	D2 18WT/BK	CCD BUS (-)
C29	D20 18LG/BK	SCI RECEIVE
C30	D1 18VT/BR	CCD BUS (+)
C31	-	-
C32	V37 18RD/LG	SPEED CONTROL SWITCH SIGNAL



REAR WASHER
PUMP

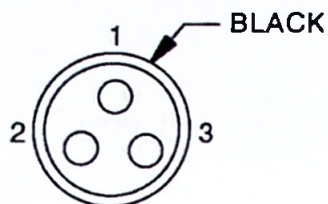
REAR WASHER PUMP - BLACK 2 WAY		
CAV	CIRCUIT	FUNCTION
1	V20 18BK/WT	REAR WASHER MOTOR CONTROL
2	Z1 18BK	GROUND
2	Z1 18BK	GROUND



REAR WINDOW
DEFOGGER SWITCH

REAR WINDOW DEFOGGER SWITCH - GRAY 4 WAY		
CAV	CIRCUIT	FUNCTION
1	Z1 20BK	GROUND
2	C80 20DB/WT	REAR WINDOW DEFOGGER RELAY CONTROL
3	C16 20LB/YL	REAR WINDOW DEFOGGER RELAY OUTPUT
4	E2 20OR	FUSED PANEL LAMPS DIMMER SWITCH SIGNAL

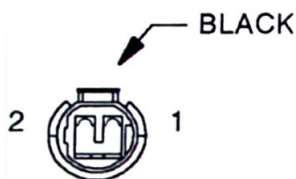
CONNECTOR PINOUTS



RIGHT REAR
DOOR JAMB
SWITCH

RIGHT REAR DOOR JAMB SWITCH - BLACK 3 WAY

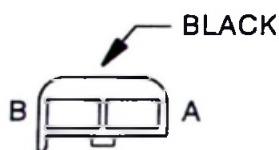
CAV	CIRCUIT	FUNCTION
1	-	-
2	Z1 18BK	GROUND
3	M2 8YL	REAR DOOR SWITCH TO COURTESY LAMP



RIGHT REAR
DOOR LOCK
MOTOR

RIGHT REAR DOOR LOCK MOTOR- BLACK 2 WAY

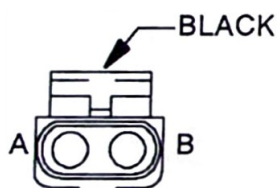
CAV	CIRCUIT	FUNCTION
1	P34 16PK/BK	DOOR UNLOCK DRIVER
2	P33 16OR/BK	DOOR LOCK DRIVER



SEAT BELT
SWITCH

SEAT BELT SWITCH - BLACK 2 WAY

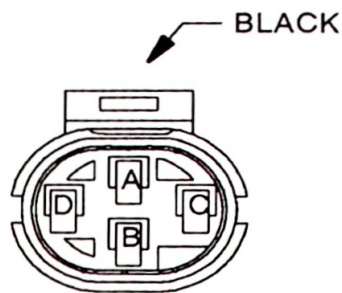
CAV	CIRCUIT	FUNCTION
A	G10 20LG/RD	SEAT BELT SWITCH SENSE
B	Z1 20BK	GROUND



TRANSFER CASE
SWITCH (231 4WD)

TRANSFER CASE SWITCH (231 4WD) - BLACK 2 WAY

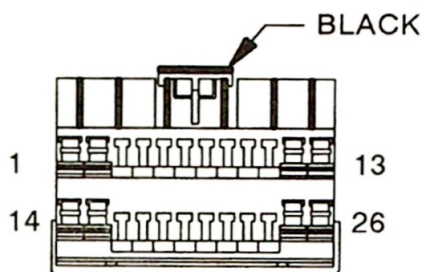
CAV	CIRCUIT	FUNCTION
A	G107 20BK/RD	4WD SWITCH SENSE (PART-TIME)
B	Z1 18BK (GAS)	GROUND
B	Z1 20BK (DIESEL)	GROUND



TRANSFER CASE
SWITCH (242 4WD)

TRANSFER CASE SWITCH (242 4WD) - BLACK 4 WAY

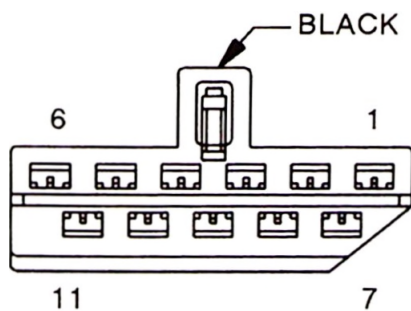
CAV	CIRCUIT	FUNCTION
A	Z1 18BK	GROUND
B	G106 20BK/WT	4WD SWITCH SENSE (FULL-TIME)
C	-	-
D	G107 20BK/RD	4WD SWITCH SENSE (PART-TIME)



TRANSMISSION
CONTROL MODULE

TRANSMISSION CONTROL MODULE - BLACK 26 WAY

CAV	CIRCUIT	FUNCTION
1	T31 20VT/LG	INPUT SPEED SENSOR GROUND
2	T52 20RD/BK	INPUT SPEED SENSOR SIGNAL
3	T13 20DB/BK	OUTPUT SPEED SENSOR GROUND
4	T14 20LG/WT	OUTPUT SPEED SIGNAL
5	-	-
6	D2 20WT/BK	CCD BUS (-)
7	D1 20VT/BR	CCD BUS (+)
8	-	-
9	T3 18VT	TRS T3 SENSE
10	-	-
11	T22 20DB/WT	SOLENOID CONTROL
12	T19 20WT	SOLENOID A CONTROL
13	T60 20OR/WT	SOLENOID B CONTROL
14	D21 20PK	SCI TRANSMIT
15	-	-
16	K167 20BR/YL	SENSOR RETURN
17	K22 20OR/DB	THROTTLE POSITION SENSOR SIGNAL
18	L10 18BR/LG	BACK UP LAMP FEED
19	-	-
20	-	-
21	T42 18VT/WT	TRS T42 SENSE
22	T1 18LG/BK	TRS T1 SENSE
23	K29 20WT/PK	BRAKE SWITCH SENSE
24	Z12 18BK/TN	GROUND
25	M1 20PK	FUSED B(+)
26	F12 18DB/WT	FUSED IGNITION SWITCH OUTPUT (ST-RUN)

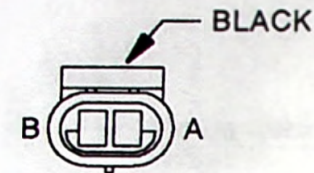


TURN SIGNAL/
HAZARD SWITCH

TURN SIGNAL/ HAZARD SWITCH - BLACK 11 WAY

CAV	CIRCUIT	FUNCTION
1	L60 20TN	RIGHT TURN SIGNAL
2	-	-
3	L62 20BR/RD	RIGHT TURN SIGNAL
4	L55 20RD/WT	COMBINATION FLASHER INPUT
5	L6 20RD/WT	FLASHER OUTPUT
6	L12 20VT/TN	HAZARD FLASHER SELECT SIGNAL
7	-	-
8	-	-
9	L63 20DG/RD	LEFT TURN SIGNAL
10	L61 20LG/WT	LEFT TURN SIGNAL
11	L55 20RD/WT	COMBINATION FLASHER INPUT

CONNECTOR PINOUTS



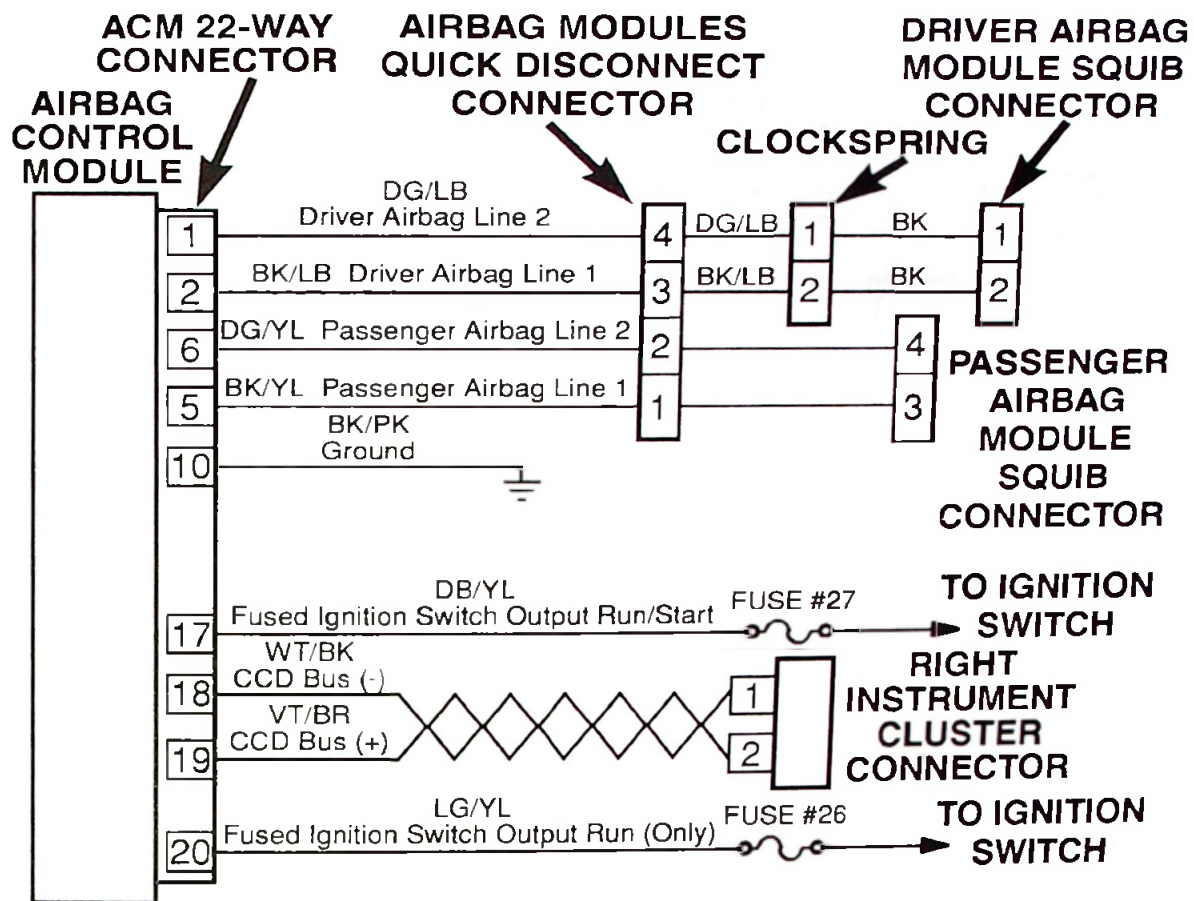
WASHER
FLUID LEVEL
SWITCH

WASHER FLUID LEVEL SWITCH - BLACK 2 WAY		
CAV	CIRCUIT	FUNCTION
A	Z1 20BK	GROUND
B	G29 20BK/LB	WASHER FLUID SWITCH SENSE

CONNECTOR PINOUTS

10.0 SCHEMATIC DIAGRAMS

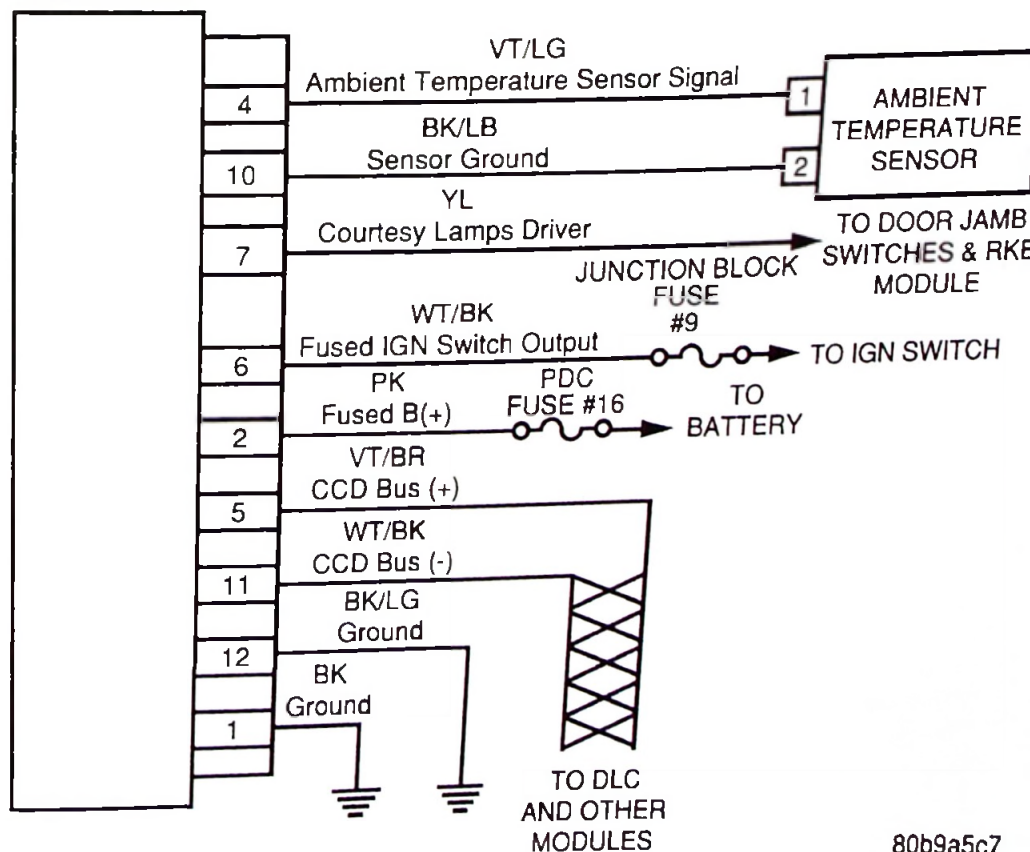
10.1 AIRBAG SYSTEM



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10.2 COMPASS/MINI-TRIP COMPUTER

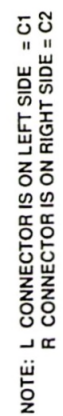
COMPASS/MINI-TRIP
COMPUTER



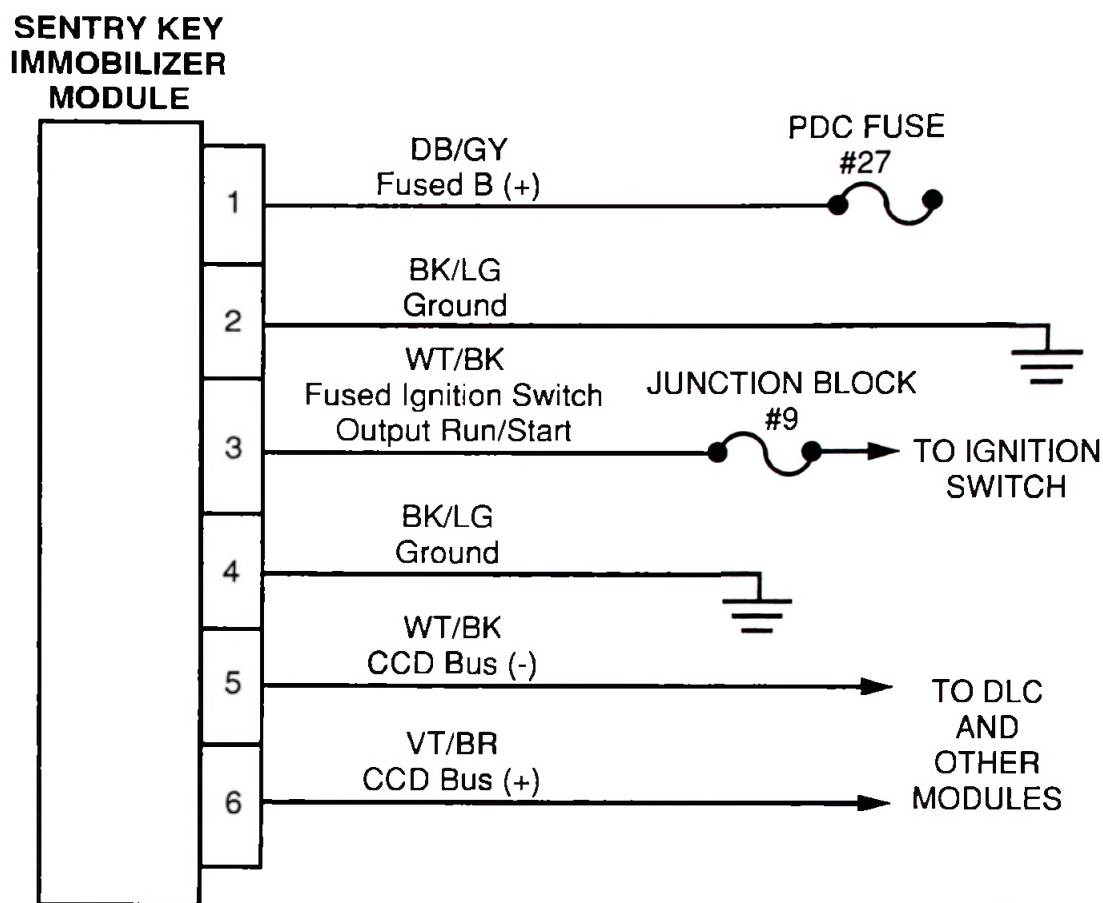
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S C H E M A T I C S

10.3 INSTRUMENT CLUSTER

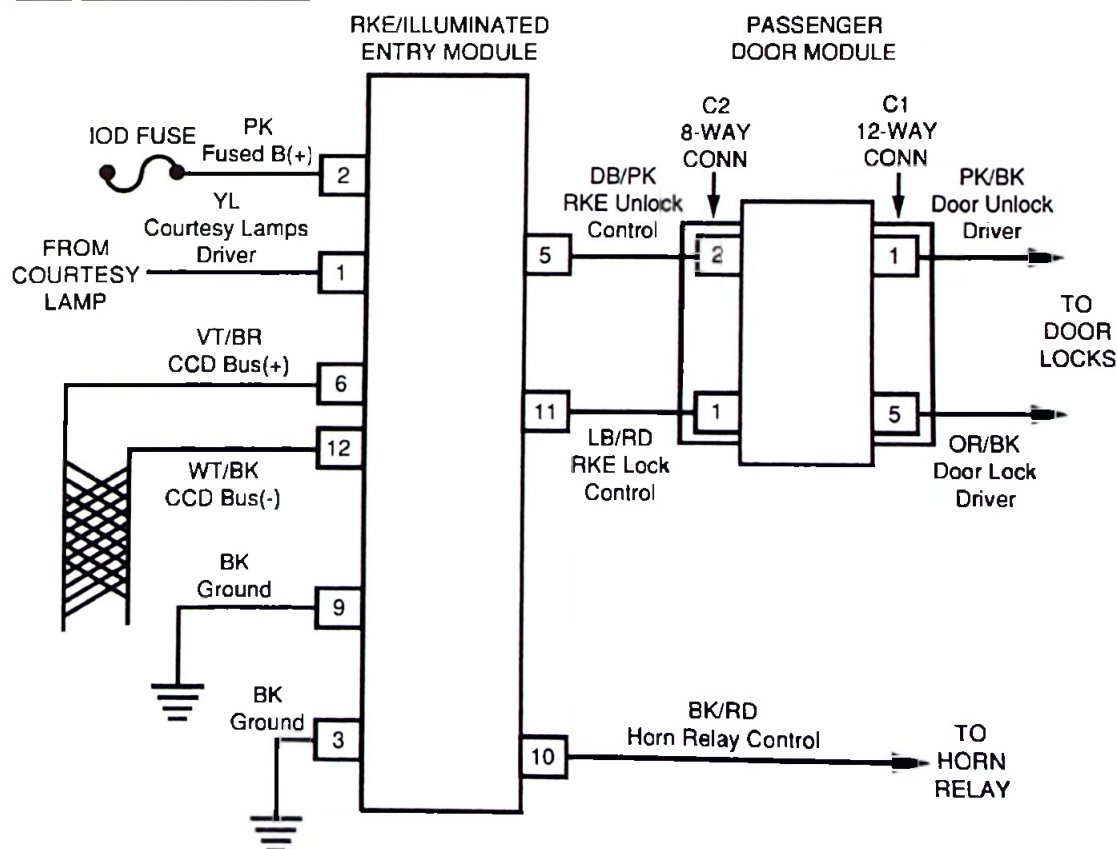


10.4 SENTRY KEY IMMOBILIZER SYSTEM



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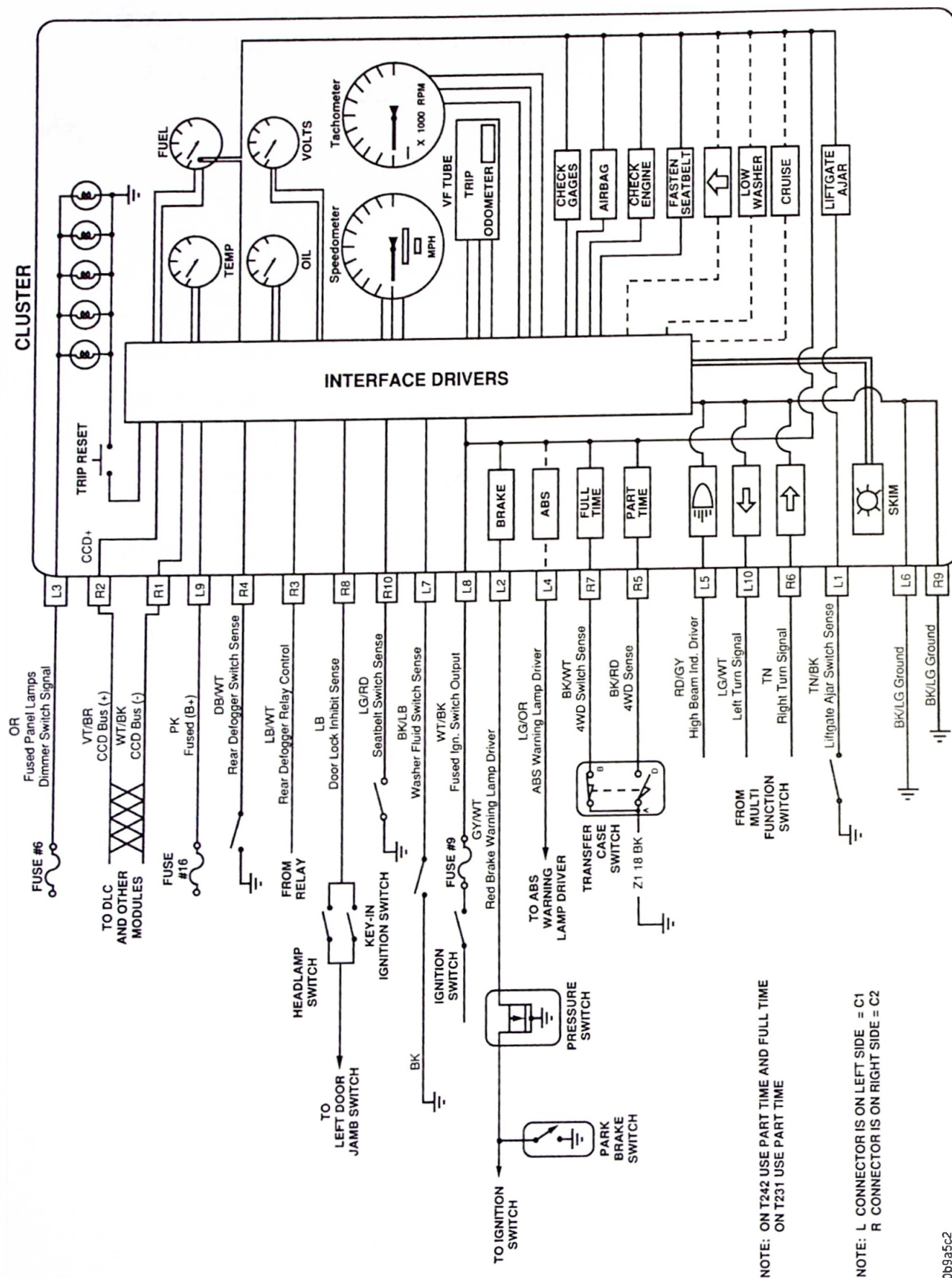
10.5 REMOTE KEYLESS ENTRY



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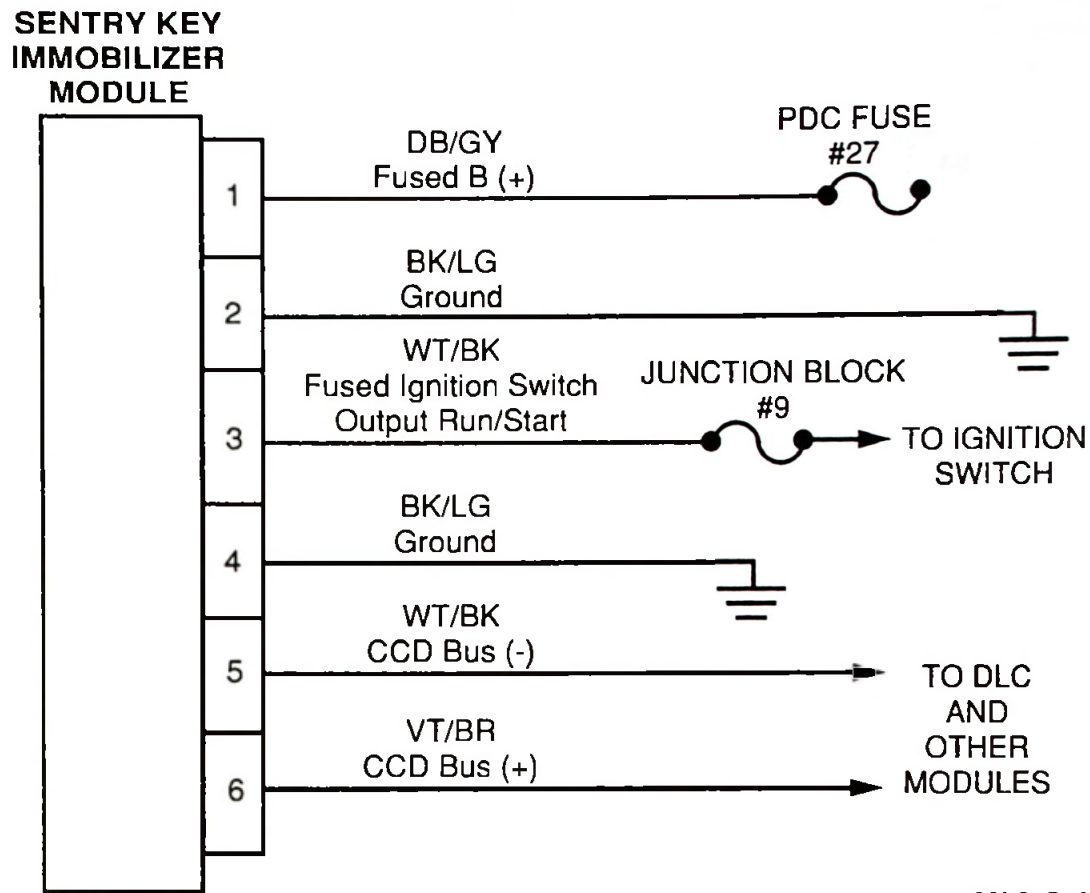
SCHEMATICS

10.3 INSTRUMENT CLUSTER



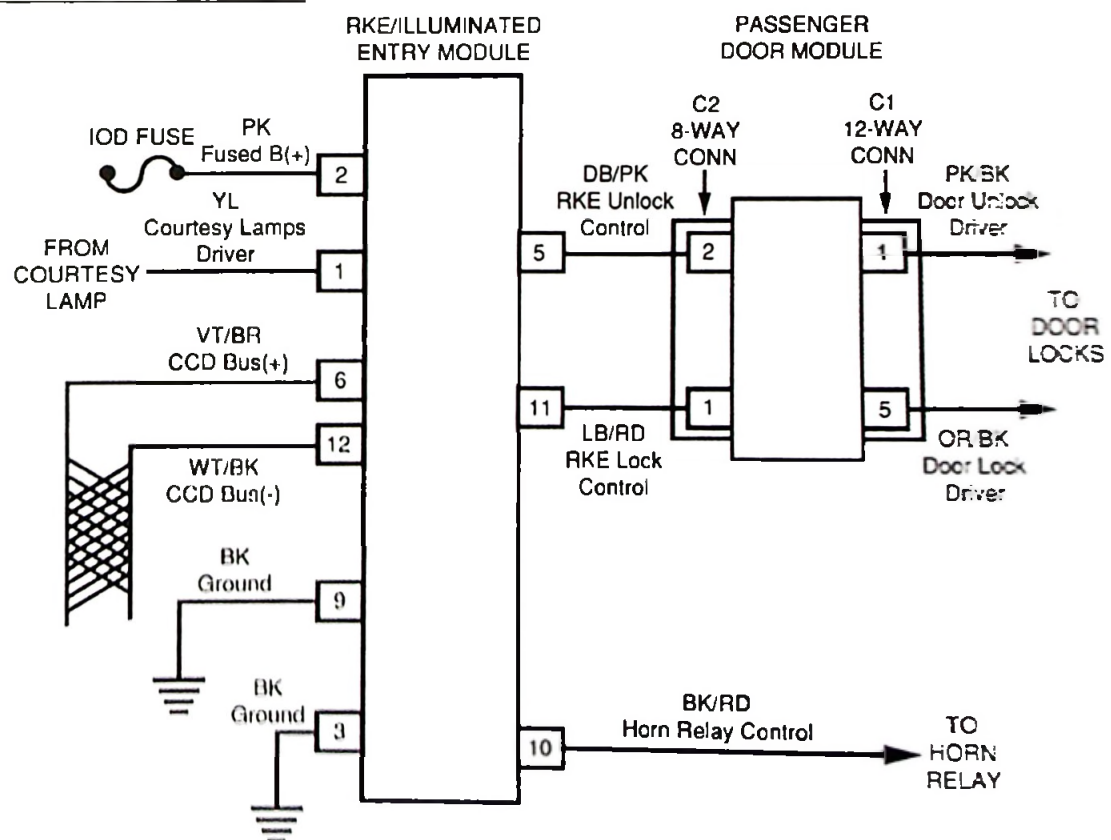
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10.4 SENTRY KEY IMMOBILIZER SYSTEM



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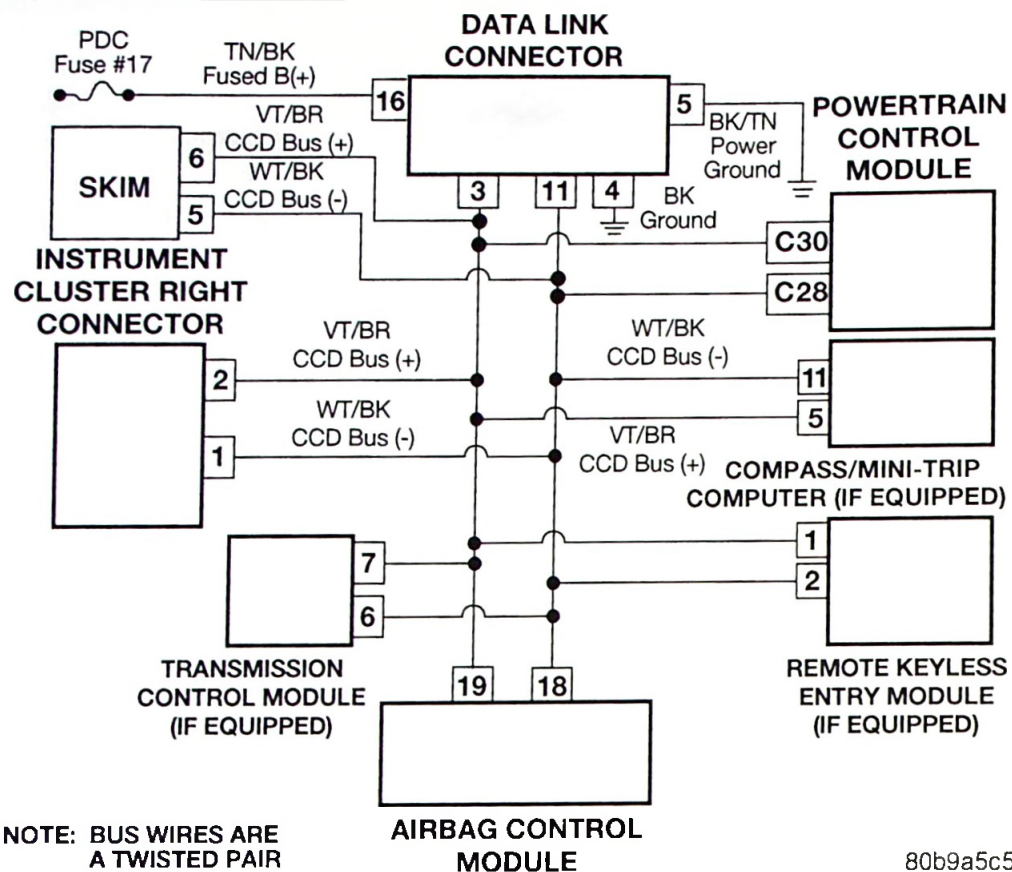
10.5 REMOTE KEYLESS ENTRY



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SCHEMATICS

10.6 VEHICLE COMMUNICATION



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DIAGNOSTIC TEST PROCEDURES — TELL US!

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To best understand your suggestion, please complete the form giving us as much detail as possible.

Model _____ Year _____ Body Type _____ Engine _____

Transmission _____ Vehicle Mileage _____ MDH _____

Diagnostic Procedure _____ Book No. _____ Page _____

Comments/recommendations (if necessary, draw sketch)

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